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Edwin Arthur Parr

It is with regret that we report the death on January 13, 1963, of Edwin Arthur Parr, long time member of the Alberta Advisory Committee on Educational Research. Born in Montreal on August 20, 1894, Mr. Parr settled in the Meanook area of Alberta following the first World War. His interest in educational affairs at the local and provincial levels led him to the Presidency of the Alberta School Trustees' Association. With a sincere interest in the welfare of the boys and girls of Alberta Mr. Parr supported in untiring fashion anything that would further their educational advancement. He saw in educational research one means of doing so. We are appreciative of the support and good judgment upon which we have come to rely and which we shall now miss. Our sympathy is expressed to Mrs. Parr.

SOME COMMENTS ON THE TYPES OF PROBLEMS INHERENT IN THE ESTABLISHMENT OF A NATIONAL TESTING PROGRAM FOR UNIVERSITY ADMISSION

by

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In their June 11, 1962 meeting, the National Canadian Conference of Universities and Colleges (NCCUC) made this recommendation to the executives of the Canadian Universities Foundation:

> " . . . that this Conference ask the Canadian Universities Foundation to establish a Canadian University and College Examination Board and begin negotiations with both the College Entrance Examination Board and Educational Testing Service to explore the nature of possible working arrangements between a Canadian body and their organizations with a view to the development of an effective Canadian establishment."

The reasons for such a resolution need not be elaborated here. It is common knowledge that the conventional system of provincial departmental examinations is fast becoming unwieldy with the rapidly increasing number of students tested each year. Considerable pressure is beginning to be exerted by many high schools for full accreditation of their students. As Canadian universities in one area become over-crowded, students apply to other institutions in other provinces, adding to the already recognized increased mobility of Canadian families. Announcements of acceptance of admission are now delayed by the mid-summer release of Departmental examination results so that the students can neither plan ahead nor can the universities make the necessary adjustments to accommodate expected enrollments. Finally, the advent of major national scholarship programs will require some common measures of ability and achievement if they are to attain their stated objectives. The development of such a national program is viewed as inevitable. The purpose of this paper is to indicate some aspects of the program that will demand careful consideration before the establishment of a Canadian admissions testing program on an operational basis.

In the beginning, it must be emphatically stated that any national testing program should not be construed as the sole basis of admission to university. The effectiveness of school records as predictors of future performance has been long established but by including the results of a national testing program, the admission

process to universities can be improved. The test scores would achieve their greatest usefulness in permitting the early provisional admission to university subject to obtaining a satisfactory high school record. This would permit more valid admission decisions for borderline students than can be made using only one criterion. It should also be emphatically stated that there should be no passing score on these tests. Each university and each faculty and college within each institution will determine its own cutting scores for admission based on its own experience. Further, it should be indicated that the performance of one province's students or the performance of one institution's students should not be publically compared with that of another. Local conditions of student selectivity, philosophy of the institution concerned, and area cultural differences make comparison, on the basis of test score alone invidious.

A national testing program of the type proposed in the NCCUC resolution should be uniquely Canadian. On the other hand, the valuable lessons learned by the College Entrance Examination Board (CEEB) in over sixty years of experience would be of immense value in planning a Canadian program. The willingness of the CEEB to share their experience is documented in the CEEB 1962-63 Annual Report of October 31, 1962, by Dr. Edward S. Noyes, Acting President, who writes, " . . . we shall be delighted to offer all possible assistance to our Canadian counterpart." (p.7).

What then should be the nature of such a Canadian program? First, the program will need a membership from which direction can be given to those officials operating the program. Logically, such membership should be composed of those groups using its services. The universities because of their primary interest in the program should maintain a majority in any membership, but the membership must also include representation from the secondary schools, the Departments of Education, and other groups involved in the preparation of students to enter university. The mutual interest of both the secondary schools and institutions of higher learning has long been recognized in the various provincial matriculation committees. To deny this established tradition in the formation of a Canadian Board would be to deny acceptance of its services even before they are offered.

In looking for an already established national educational organization under whose aegis such a Canadian Board might operate, none can be found whose frame of reference can encompass the full scope of a necessary secondary school/university operating relationship. Logically, the ideal solution would be the establishment of a new Canadian educational institution, the Canadian University Board on Admissions. As will be indicated later, the opera-

tion of the Board would be a major undertaking. Such an organization should have full control over its own financial expenditures, receipts, and contractural agreements, with any surpluses that might accumulate being put back into admissions and test development research or towards the reduction of testing service costs, rather than towards the support of any parent institution.

Another area where it seems essential that both the secondary schools and the universities must be represented is in the membership of various committees who will develop the tests to be used in the program. Obviously if a truly Canadian battery of tests is to be part of the program, Canadian educators will have to develop them—and they must be prepared to accept the costs of so doing. It will be here that the translation of what the secondary schools can and are doing can be truly related to what the universities want and expect of the incoming freshmen. It is the author's opinion that in the preparation of examinations on such a cooperative basis, more can be accomplished by way of secondary/university articulation than will ever result from hundreds of speeches by both parties separately. Further, the presence of the best authorities available in Canada on each of the various subject matter committees provides a splendid opportunity for curriculum development leadership on a much broader scale than has heretofore existed.

If the principle of representation of interested parties and users of the Canadian Board services is adhered to, problems of determining proportional representation for the various strata of Canadian education will be a difficult but not an insurmountable organizational problem. Preliminary to such details must first come the policy decision on the nature of representation on the Board itself.

In the matter of test development there will be those who claim that their local educational programs are unique, yet there exists in any matriculation curriculum a common core of concepts in each subject area. It is difficult to see how differentiation and integration (as mathematical concepts) are any different in Newfoundland, Quebec or British Columbia, or that the concepts of good writing in Nova Scotia differ from those in Saskatchewan. Certainly, how these concepts are taught will vary almost as much within each province as they do from province to province but is there not a commonality about the end product that is far greater than we are perhaps prepared to admit? A Canadian Board's tests will undoubtedly have to be based on those concepts common to the courses of study across Canada and which, therefore, will encompass some eighty-five percent of all curricular content. The remaining percentage of content uniquely provincial will, of course, be reflected in the high school mark which will also form the basis of admission

to university. It will be the responsibility of the various Board subject test development committees to determine this common core of concepts and to develop instruments which will establish their presence.

The offer of cooperation of the CEEB would imply access to extensive test item banks in a great number of subject areas from which more suitable Canadian tests could be composed. Moreover, experinece with a variety of CEEB achievement tests in Alberta has shown that many are reasonably well suited to Alberta curricula without change. Jackson of the OCE Department of Educational Research has developed an Ontario version of the Scholastic Aptitude test. In other words, an acceptable Canadian English language aptitude and achievement battery could be prepared within a reasonably short time in all fields, (including those areas covered by the Social Studies), that would be adequate until purely Canadian test item banks could be built up. The development of separate tests for Social Studies should receive priority in the development of new instruments.

Inasmuch as any truly national program must include French language tests, new tests will have to be developed. It has long been established that the mere translation of English tests into French tests will not result in instruments equivalent to the original. Therefore, the Canadian Board will have to devote the bulk of its initial test development efforts to the building of French language tests inasmuch as no instruments and test item banks in this language and equivalent in sophistication to those of the CEEB and ETS are known to exist. As the development costs are estimated at about $25,000 per test, the development of French language tests will represent a major expenditure to the Canadian Board. However, there is the opportunity in the development of such tests for a major Canadian contribution to international admissions practices.

Besides the use of an academic aptitude test, the number of achievement tests each candidate will be asked to take will necessitate another decision for the Board membership. Undoubtedly, there will be some pressure to duplicate the areas tested by the present matriculation examinations and have students take all tests in such a battery. There is some evidence, however, that this might constitute an unnecessary expenditure of testing effort particularly if the high school record will also be used in admitting students. Dr. W. B. Schrader in unpublished research at Educational Testing Service has found that the combined score of any three CEEB achievement tests chosen by the candidate predicts freshmen success in university as well as does the high school average. Certainly the number and the nature of the instruments to be used will

demand major consideration. Further, what of the transition from the conventional Departmental examinations to national program instruments? Essay examinations remain the core of most Departmental programs. The advantages of the information yielded uniquely by the candidate's writing his answers could be measured separately in an essay type instrument such as the CEEB Writing Sample or the General Composition Test. This would answer one of the criticisms likely to be encountered in wider use of objective tests. Certainly emphasis could then be placed directly on writing and organizational ability without contamination from the measurement of subject content. In any event, it should be recognized that the inclusion of any test that has to be read by skilled readers will serve to increase the costs of testing accordingly, although the additional data gained may justify these increased costs.

Regarding actual testing, the Canadian Board will have to consider several possibilities. First, there is the problem of who is to be tested. Some will favor that all graduating high school students be tested while others would suggest that only those students seeking admission to college be tested. There are many strong arguments for each position. Another related problem will be to assign the dates of testing. The College Board schedules a number of testing dates throughout the year. Will the Canadian Board follow this pattern or will they assign only one set of dates, for example, sometime before Easter, with a "make-up" testing scheduled for several weeks later? Again it becomes a matter of compromise between convenience to the schools and universities and test administration costs: the fewer the administrations, the lower the costs of testing. Closely related to the same problem is the matter of distributing, and administering the tests. The CEEB deals directly with one person in each high school where the testing is to take place and with each student who applies individually to take the tests. In Canada, since we already have an excellent test administration machinery set up in the Departments of Education, arrangements could be made to use these existing services on a provincial basis, and thereby facilitate the conduct of a testing program. Negotiations to use these facilities would have to be conducted with responsible Department of Education officials. Related problems will centre about how the Board is to be paid for its services. Will the student contact the Canadian Board directly, will the fees be collected by each school and forwarded directly to the Canadian Board or the provincial Department of Education, or will each Department of Education pay the Board on a pro rata basis or a retainer fee for all students tested within the province concerned? Undoubtedly, the financial arrangements of the Canadian Board's operation will have to be made to

meet a variety of conditions depending upon agreement with each participating province.

A Canadian Board would have to assume responsibility for communicating the nature of its services to the user and the student alike. In its simplest form, it should indicate the nature, dates and necessary administrative details of its services to the secondary schools and the universities. Such is hardly viewed as adequate on the basis of the experience of similar organizations. We still do not require every Canadian teacher to acquire a rudimentary knowledge of psychometrics in their training. Therefore, the Board, if it is to have the scores from its test program properly interpreted and to assist in their incorporation into the schools' guidance program, will have to assume the responsibility for this itself through publication and workshop programs. It must be prepared to assist college admissions officials in similar fashion. Again, it can not ignore the experience of the CEEB in such matters. It is urged that any Canadian Board plan to incorporate in its program from the beginning, provisions for such services suited to Canadian conditions. It seems undeniable that while the Canadian Board will offer its services to only a limited proportion of the total high school population, it is an ideal position nevertheless, to offer positive leadership to the schools. As a service organization to the universities and colleges, it is obligated to provide such assistance to those institutions using its services.

What of the costs of a Canadian Board's program? Certainly its charges must be adequate to meet the costs of its services? These will depend upon the size of its program, i.e., the number taking the tests, the number and nature of tests administered, the number of testings per year, the arrangement for the provision of testing facilities, distribution, scoring and reporting, to name only a few factors. Some guidance is offered in the financial statement of the CEEB for the past year. This statement includes supplementary testing programs and scholarship services not included in the initial concept of a Canadian Board. It does represent the costs of an extensive testing program under the least favorable operational conditions we could expect in a Canadian program. Therefore, for just under one million admission program testings, the CEEB 1961-62 financial report can be broken down as follows:

Item:	Income	Expenditures
Admissions Testing Program	76.0% ($8.00 per student tested)	47.1% ($4.95 per student tested)
Other Testing Programs	10.2	8.4
Scholarship Services	8.2	6.6
Publications	2.8	5.0
Research (other than test development)	1.4	4.9
Membership dues	.2	.....
Administrative charges	.....	12.3
Surplus	.....	9.6
Other	1.2	6.1
Total	100.0%	100.0%

In viewing the above distributions in relation to a Canadian program, several points should be considered. First, test development charges are fixed costs. The costs of developing a test are the same for 1,000 students as they are for 100,000. Similarly, the administrative staff of a Canadian Board will not vary directly as the size of the testing program. There is a certain minimum staff which will be required of any Canadian program. As the size of the program increases, the proportion of cost per student-test assigned to those two items will decrease sharply. In the beginning a Canadian Board cannot expect to operate on such a favorable proportioning of expenditures as the CEEB. The second consideration is directly related. Test programs like any other product are costed on an estimated number of pupils tested. If for some reason, there is a large expansion in actual testing, surpluses result. For a Canadian Board to be a self-supporting educational organization, it will have to base its operation on a given number of testings upon which it can depend. If yearly surpluses do occur they can be used to expand and improve the program of services to the secondary schools and colleges.

What, then, is the potential number of users of a Canadian Board's services? By way of illustration, the junior matriculation and university/college undergraduate enrollments for the academic year past (1961-62) are given below:

	Junior Matriculation Level[1]	Universities and Colleges[2]
British Columbia	15,011	13,902
Alberta	15,308	8,028
Saskatchewan	10,638	6,103
Manitoba	9,957	6,653
Ontario	47,213	32,968
Quebec	43,031	40,849
New Brunswick	3,886	4,384
Nova Scotia	6,864	6,237
Prince Edward Island	611	638
Newfoundland	4,302	1,740
Other	169	.....
Total	156,991	121,547

1. Dominion Bureau of Statistics: Education Division, *Preliminary Statistics of Education*: 1961-62. May, 1962. Ottawa: Queen's Printer, Government of Canada, Catalogue No. 81-201 Annual, Table 6, p. 21.
2. ....., *Fall Enrollments in Universities and Colleges*: 1961. April, 1962. Ottawa: Queen's Printer. Government of Canada, Catalogue No. 81-204 Annual. Table 2, pp. 12-17.

If we accept these figures as a basis of discussion only, 160,000 would be eligible for admission to university on the bases of Grade 12 or Junior Matriculation and consequently could make use of the Board's services. If the freshman enrollment is estimated to be a quarter of the total undergraduate enrollment, 30,000 (plus 12% to include those who apply for admission but do not come to college), the limits of the two positions, that of testing all potential freshman and high school seniors is evident. On the basis of the tabled data, any combination of provincial participation can be estimated. If, for example, the four Western provinces wished to enter into a common testing program, they would consider a Grade XII population of 41,000, with a population of 10,000 seeking admission to university. Ontario already conducts its own testing program through O.C.E. Department of Educational Research involving in excess of 60,000 Grade XII students. (Note: D. B. S. statistics indicate that there were 47, 213 junior matriculants in Ontario last year. Therefore, the D.B.S. figures noted above may be conservative.)

Whether the Board elects to test all grade XII's/Junior Matriculants or only those who are applying for admission to Canadian universities is a critical question. Equally critical would be the number of commitments of Departments of Education and universities to use the Board's services. Unquestionably, it cannot be expected that all Canadian universities and colleges will accept the Board's services initially or even in the future. The same would be true for the various Departments of Education although it must be recognized that one element is not likely to move without approval of the other. It is not known how the French Canadian university community would react at the time delay that would be occasioned by

the development of adequate French language tests which were equivalent to those in English. Certainly these institutions would have a vital role in this test development. Without their cooperation, it would not take place nor should it be attempted on any other basis because of the large sums of money required and the huge investment of manhours of professional talent. It would be a tragedy if such a Board were to proceed without the support of the French speaking educational institutions. However, this may be necessary, because, first, an acceptable English language test program can be quickly made available, and second, the proceeds from the English language testing program could then be used to subsidize the development of French language tests.

In summary, the Canadian Board will have to consider in its initial stages the incorporation of certain charter members who are prepared to support the program before it is official. After the program is underway, undoubtedly, its services will be sought by provinces outside the charter membership. The Board's program may begin on a very modest scale and for this reason, it may have to be highly subsidized or the charges for its services may have to be unduly high. These problems, however, are viewed as matters of logistics and without adequate data, it is pointless to pursue the matter in this paper beyond indicating this as an area of major concern.

The major decisions that will have to be considered after the initial decision to establish a Canadian Board will center about the appointment of staff. In reality, no matter how fervent a plea is made for this or that aspect of the Board's program, its acceptability will depend solely upon the efforts of the Director of the Board (or whatever title he may be given). This person must have complete confidence in the worth of the program. He must establish and administer an organization in a highly specialized field which, though non-profit, will entail the receipt and disbursement of large sums of money. He must be respected by both university and school officials and maintain sympathy and understanding for the problems of each. Such a person obviously is destined to carry heavy responsibilities, a fact which should be recognized in his salary and status. He must be prepared to devote ten to fifteen hard years toward the establishment of the Board on a firm continuing basis. If the work of the Canadian Board is seen as important to Canadian education, the nation can ill afford to compromise on obtaining the best qualified Canadian for this position.

A second major appointment to the Canadian Board will have to be a person responsible for the test development work. Not only will he have to be highly skilled in this particular field of specialization but he will have to have administrative and organizational

skills if the principle of committee test development is to function properly. It will be difficult to find Canadians with the necessary test development skills noted above.

The provision of technical services, that is, the machine scoring and reporting of test scores finds Canada in a much more favorable position. The Department of Education Research at the University of Toronto, headed by Dr. R. W. B. Jackson, has had four years of experience in the processing of data from large scale testing programs. Undoubtedly, this aspect of the Board's program could be contracted to this agency with confidence.

In summary, the recommendations of the NCCUC for the establishment of a Canadian University Board on Admissions has great importance for all of Canadian education. The degree to which this importance is recognized, will be readily apparent by the way in which the Board is organized. The organizational problems of the Board as outlined are viewed, in the long run, as far more critical than the mere provision of technical services. Given qualified administrative officers of the Board, an aceptable English language testing program can be presented very quickly with the cooperation of the College Entrance Examination Board. However, this initial program should be viewed only as a transitional program which will undergo revision with experience.

The French language program is not in the same favorable position. Extensive and costly test development will have to be undertaken even before an initial program can be offered.

Basically, the problems of the Canadian Board as are follows: Do Canadian educators, and the universities in particular, really want this program? Are they prepared to staff properly this organization with personnel of high calibre chosen from educational institutions who can ill afford their loss? Is the Board to be a cooperative venture operating independently from existing provincial and national educational organizations? Are we prepared to operate the Board on such a financial basis as to make the work that the Board must undertake in test development and services economically feasible? It is the opinion of the writer and that of others, expert in this field, that if a major program cannot be undertaken on a sound financial and staffing basis, it is probably better that it be delayed until such time as these necessary provisions can be made. Therefore, the responsibility that now lies with those who must consider the establishment of a Canadian Board is a most important one. The decisions that they will make will have a profound effect on all of Canadian education, now and in the future. This effect can be salutory, or, if the program is mishandled, it can do untold harm to future cooperation of schools and colleges, and, indeed, to Canadian education as a whole.

CASE STUDIES OF HIGH SCHOOL DROP-OUTS

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The Problem and Purpose of the Study

Many high school students who are capable of completing high school and going on to University or other institutions of higher learning drop out of high school to take jobs with little opportunity for advancement and little security of tenure. When asked why the students drop out of school, drop-out, parents and teachers often give evasive answers. The purpose of this study was to determine the proportion of high school drop-outs in a rural school division in Alberta over a period of one year, to find out just why they dropped out of school and if and how this could be prevented.

Related Research

Canadian (4) and American (7) studies have indicated that in the average public school system fifty per cent of the students who enter high school do not remain to graduate. Statistics indicate that Alberta ranks comparatively high in high school holding power (3,12,1,5) but census data (8) indicates also that a large number of Alberta young people in the fifteen to nineteen age group are not attending school. What is the reason for this?

Although there have been few depth studies in Alberta or even in Canada on the reasons for high school students dropping out of school, there have been several studies where emphasis has been placed on the statistics of the number of drop-outs and comparisons between provinces or centres within the province. Canadian drop-out studies of a case study nature are rare. However, in recent years more emphasis is being placed on the latter.

Probably the most intensive research in Alberta into the study of why young people withdraw from school was made by Albert E. Hohol (11) in "A Review of Evidence on the Problem of Why Youth Leave School". Here, a collection of studies that attempts to determine the reason for drop-out has been reviewed. No one factor seemed to be solely associated with drop-out, but rather

a collection of interrelated factors that tended to accumulate, some starting at an early school age and developing to a climax in junior or senior high school, and others coming to the forefront later. No single cause-and-effect relationship has been established although it would seem logical that low average intelligence should become a more important factor as the child moves up through the grades, whereas attitudes, likes, and dislikes, do not play an important role in withdrawal from school until the child passes the compulsory school attendance age and can earn his own money.

Of the many factors listed by research workers as reasons for high school students dropping out of school, the best summary appears in the Alberta Journal of Educational Research (11). The eight factor are as follows:

1. Economic status or occupation of parents.
   The evidence strongly indicates a relationship between economic status and dropping out of school although effective guidance can help to overcome economic handicaps.
2. Retardation, becoming over-age.
   Repetition of work and grades, especially work that the student is incapable of doing will contribute to withdrawal from school particularly at the elementary level. Also related in this problem are absenteeism, transfers and health.
3. Intelligence.
   Intelligence of drop-outs is higher than most people suspect and many students are capable of average high school work. Often this average intelligence is associated with low marks.
4. Sex.
   In North American schools boys leave at an earlier age than girls.
5. Home status.
   Insecurity and lack of guidance in the home, which causes the child to bring his problems to school, has detrimental results.
6. Personality.
   Since ratings were subjective, no conclusive evidence could be associated with the withdrawal from school for personality reasons.
7. Participation in extra-curricular activities.
   The feeling of 'belonging" plays an important part in school retention.

   Potential drop-outs are more often those unhappy non-participating types.

8. Pupil and parent attitude toward education.
   Unless there is a strong positive attitude toward education, the school has a formidable task. Cook (6) sums up many investigations when he states,

> "In most cases school withdrawal results from a multiplicity of factors which when operating together present the individual student with seemingly insoluble problems which he can most easily meet by withdrawal from school."

He states that reasons given by students for withdrawal are basically unreliable in that they fail to reveal actual causes.

Procedure

This drop-out study was a study in depth where students who dropped out of school were interviewed and their backgrounds studied in some detail. Their parents and teachers were also interviewed. The cases studied were made up of the total number of drop-outs from high schools in the Acadia School Division from June 1, 1960 to June 1, 1961. These former students had successfully passed the Alberta Grade IX examinations and were registered in Grade X, XI or XII before withdrawal from school.

In the year prior to the study various tests and studies were administered to ensure that cumulative information on the drop-outs was up-to-date and that similar background information was available on all students. Since it was impossible to determine who the drop-outs would be, it was necessary to investigate all Grade IX and high school students in the school division. Tests administered were the Otis Quick Scoring Ability Test, Kuder Preference Record (Vocational), Sociometric tests asking the questions, "Who do you think are your best friends?" (first, second, and third choice), "With whom would you most like to work on a committee?" (first and second choice), and "With whom would you most like to go to a show or dance?" (first and second choice), as well as a casting characters or "Guess Who" test. The results of these tests, in conjunction with accumulated information on the student's cumulative records and other available data such as examination results, formed a core of fundamental knowledge for both comparative purposes and basic information on the drop-out.

As each student dropped out of school, background information was assembled and interviews were arranged with the drop-outs, parents, and principal and/or home room teachers of his/her last school. Advance questionnaires were not circulated. The interview discussions centered around a 200 item questionnaire which was designed to determine the relationship between the drop-out and:

1. The school and teachers.
2. Outside influences.
3. Parental and home influence.
4. Personal factors.

This information was further analyzed and assembled, and a case report was written on each drop-out under the headings:

1. Case history obtained through interviews.
2. Test results and ability.
3. Attitudes and interests.
4. Analysis of data and reason for leaving school.

The Findings

The Acadia School Division is large in land area but sparse in population. It is a rural area in south-eastern Alberta centred around the small town of Oyen. Farming and ranching provide limited incomes to the residents in most years, although, if the rains come and the crops flourish the call of the land is strong to the sons and daughters of the local farmers and ranchers.

Although the schools are new and modern in design, sparsity of population and long distances for bussing have prevented the establishment of one truly composite high school in the whole school division. This has meant a lack of variety in the high school program and has created the added problem of teachers teaching outside their fields of specialization. The core subjects are available, however, although the three year high school programs often have to be spread over four years.

Enrollments in schools in the school division are indicated in Table I. Whereas a slow increase in the lower grades in the period 1955 to 1960 is shown, a more rapid drop-out in the upper grades is evident.

TABLE I

ENROLLMENTS IN ALL GRADES IN ALL SCHOOLS in the ACADIA SCHOOL DIVISION SINCE 1955

Year	Grade Enrollments												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
1960	123	117	111	86	101	91	93	77	65	56	48	45	1,013
1959	128	109	94	100	86	97	76	63	79	42	47	33	954
1958	127	91	106	84	102	75	75	79	56	55	45	26	920
1957	89	97	88	104	85	78	83	60	74	51	33	24	866
1956	96	88	102	91	77	92	65	76	67	43	35	23	855
1955	89	105	86	84	87	61	76	57	65	(96)			806

A better picture of the school's holding power is indicated in Table II where the approximate percentage of students in each grade as computed in ratio to the total number of students in the schools in the five year period since 1955 is shown.

TABLE II

TOTAL STUDENTS AT EACH GRADE LEVEL IN THE FIVE YEAR PERIOD SINCE 1955

Grade	1	2	3	4	5	6	7	8	9	10	11	12
Total No. of Students Since 1955	563	502	500	465	451	433	392	355	341	247	208	151
% of Total (4608)	12	11	11	10	10	9	9	8	8	5	4	3

During the period June 1, 1960 to June 1, 1961, ten students registered in high schools (Grades X, XI and XII) in the Acadia School Division withdrew permanently from school. These drop-outs were interviewed and backgrounds of each studied in some detail. Table III is a collection of data relevant to the background of the drop-outs.

TABLE III

COLLECTION OF DATA RELEVANT TO BACKGROUND OF DROP-OUTS

	CASE NO.									
	1	2	3	4	5	6	7	8	9	10
Date of Drop-out	Jun 30/60	Jan 20/61	Jun 30/60	Jun 30/60	Feb 16/61	Jun 30/60	Jun 30/60	Jun 30/60	Sept 15/60	Jun 30/60
Age at Time of Drop-out	17-5	18-5	17-2	18-6	17-3	16-4	17-7	17-11	17-9	17-9
Grade at Time of Drop-out	12	11	11	11	12	11	12	12	12	12
High School Credits Obtained	76	30	36	55	66	36	63	55	67	56
Size of H.S. at time of drop-out	1 room grade 7-11	Standard Instruct.	2a	2a	Standard Instruct.	2b	2a	2b	2a	2b
Standing in Class (Academic)	Top	Bottom	Bottom	Middle	Bottom	Middle	Bottom	Bottom	Bottom	Bottom
Parents Living	1	2	2	0	2	1	2	2	2	2
Occupation Mother Father	Lease Ranch Deceased	Housewife Carpenter	Housewife Farmer	Deceased Deceased	Housewife Bus Driver Mechanic	Housewife Deceased	Housewife Road Foreman	Teacher Rancher	Housewife Farmer	Storekeeper Mechanic
Siblings Boys	0	4	1	1	1	3	0	0	5	1
Girls	1	3	2	3	5	2	4	3	4	3
Position in Family	1	2	1	4	2	5	3	4	3	1
Social Status	Medium	Low	Medium	Low (Guardian)	Low Medium	Low	Medium	Medium High	Low	Low Medium
Economic Status	Low	Medium	Medium High	Low (Guardian)	Medium	Low	Medium	Medium High	Medium	Medium
Intelligence Quotient	112	Est. 110	95	Est. 110	95	100	92	85	90	97
Occupation Time of Interview	Banktellar	Carpenter	Farm-helper	Military Police	Delivery Truck	Housewife	Waitress	Hairdresser	At Home	Agricultural School
Proposed Before Drop-out	Stenographer	Drafting	Mechanic	R.C.M.P.	R.C.M.P.	Steno-grapher	Secretary	Air Stewardess	Nurse	Veterinarian College
Proposed Now	Housewife	Carpenter	Farming	Police	Mechanics or R.C.M.P.	Housewife	Nursh Aid	Hairdresser	Nurses Aid	Agriculture

Evidence that might point to the reason for dropping out of school was gathered from parents, teachers, principals, and school records. Details of this information were assembled and written up in case study form. Results obtained by the drop-outs on Grade IX

Table IV
RESULTS OBTAINED BY CANDIDATES ON GRADE IX DEPARTMENTAL EXAMINATIONS

	Achievement	Reading Test	Literature	Social Studies Language Part A (Social Studies)	Social Studies Language Part B (Language)	Mathematics	Science	Raw Score Reading Test	STANINES Reading Test	Literature	Social Studies Language Part A (Social Studies)	Social Studies Language Part B (Language)	Mathematics	Science	Average Stanine
Drop-out No. 1	P	A	A	A	H	A	A	58	7	7	6	8	6	6	7 (6 4/6)
Drop-out No. 2	P	C	C	C	B	B	B	40	3	4	4	4	5	5	4 (4 1/6)
Drop-out No. 3	P	C	C	B	C	C	C	43	4	4	5	3	4	3	4 (3 5/6)
Drop-out No. 4	P	A	B	B	C	B	A	57	7	5	5	4	5	7	5½
Drop-out No. 5	P	B	D	C	B	B	B	45	4	2	4	4	5	5	4
Drop-out No. 6	P	C	B	C	C	C	C	44	4	4	3	3	3	3	3 (3 2/6)
Drop-out No. 7	P	A	B	C	B	C	B	56	7	6	4	5	4	5	5 (5 1/6)
Drop-out No. 8	F	C	C	C	D	D	D	35	2	3	4	1	1	2	2 (2 1/6)
	P	B	B	C	D	C	D	44	4	4	3	2	3	1	3 (2 5/6)
Drop-out No. 9	P	B	C	C	C	C	B	44	4	3	3	2	4	5	3½
Drop-out No. 10	P	B	C	B	C	B	C	49	5	3	5	3	4	3	4 (3 5/6)

departmental examinations were tabulated as shown in Table IV because various studies have indicated Grade IX marks to be good single predictors of success or failure in high school (2,10,13,14).

Each drop-out was considered as a case and studied individually and as objectively as possible. The collected data were analysed and the reasons for leaving school were assembled and presented on each case. From these data four or five significant reasons for withdrawal from school were presented and when these reasons from each case were further collected and analysed common reasons for withdrawal from high schools within this school division became evident.

Nine significant reasons for withdrawal emerged. No one student dropped out of high school because of one reason although some reasons for drop-out were more significant than others. In order to establish a weighting procedure to determine the basic reasons for drop-out, ten points were given to each former student and these points were distributed amongst the nine reasons for drop-out as indicated in Table V. The number of points for each former student under each reason for drop-out was based on the collection of data as written up in the major study (15) and adjudged significant by the author.

TABLE V

COMMON REASONS FOR DROPPING OUT OF SCHOOL

Reasons for Drop-Out	1	2	3	4	5	6	7	8	9	10	Total
Lack of Vocational Course Offering	2	2	2	1	2	3	3	3	2	4	24
Outside Attraction and Desire for Independence	4	3	0	1	2	4	2	2	2	1	21
Lack of Ability	0	0	3	1	3	0	2	3	3	1	16
Financial Difficulty	4	1	1	1	1	1	0	0	0	2	11
Dislike of School and Teachers	0	2	0	0	1	0	2	0	2	2	9
Parental Influence	0	1	2	3	0	1	0	0	1	0	8
Reached Goal	0	0	0	2	1	0	1	1	0	0	5
Personality Problem	0	1	2	0	0	0	0	1	0	0	4
Dislike of Home	0	0	0	1	0	1	0	0	0	0	2
Totals	10	10	10	10	10	10	10	10	10	10	100

Conclusion

This study yielded a complex profile for each individual. No two drop-outs had the same significant reasons for leaving high school although there were similarities in the complexity of problems that built up towards the time of leaving school.

The elements that contributed to withdrawal from school may be divided into three major classes: those connected with the school,

those connected with the home, and those connected with the personality of the individual.

More specifically, the ten drop-outs studied indicated several significant similarities in their reasons for withdrawal from school:

1. All of the drop-outs indicated a desire to take courses of a more vocational nature than those offered in an academic program. With the small high schools in this division, it had been difficult to offer anything beyond a limited academic curriculum. This reason for leaving school was closely associated with another significant reason, lack of ability or low I.Q. Whereas it may be admitted that students who are poor in academic work are often poor in vocational work, these students realized that they would have to make a living in the more technical or practical field. Some of the drop-outs had reached their goal and would have moved out of school regardless of the course offering provided.
2. Outside attractions played a large part in the reason for leaving school. These varied from: boy or girl friends; desire for independence, financal, social and otherwise; to being one's own boss.
3. Financial difficulty rated high as a reason for dropping out but it must be considered that there appeared to be some rationalization in using this as a reason.
4. Dislike of school and teachers might often be traced to courses that teachers have to offer, some of which might be out of the high school teacher's area of specialization, or in an area where the student has little interest. Lack of genuine interest on the part of some teachers was indicated.
5. Perhaps one of the crucial influences exerted by the home is in the area of attitude. The feelings of the parents towards school play an important part in shaping the attitudes of the students.
6. Personality problems that point to the drop-out as an isolate or near-isolate in school, or indications of unusual traits, often prevent him from getting along with others and lead to eventual withdrawal.

In not all cases is it the less intelligent who leave school before graduation. Many reasons are given and the first mentioned is not always the most significant. However, there appears to be a significant relationship between history of poor achievement in school and dropping out of school. Discouragement accompanies failure and leads to disinterest in school and eagerness to participate in the adult life outside of school.

This study did not indicate that students leave school upon the

successful completion of Grade IX, but rather at the end of higher grades. In recent years there has been a trend toward students leaving at a grade level approaching matriculation and at a time immediately following a completed school year. Guidance and personal interest at the end of the year might tend to hold the student in school or direct him into a more useful vocational field.

Conclusions reached were that the Acadia School Division should give careful consideration to the possibility of providing an education of a type that would suit the non-academic as well as the academic student. Better and more guidance should be given in the high schools based on students' interests and abilities. This would involve a more thorough testing program. Basically, the local curriculum has provided for the academically inclined student and expected the non-academic student to fit into this program.

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PARENTAL BEHAVIOR AND STUDENT ATTITUDES TOWARDS FURTHER TRAINING AMONG INDIAN AND NON-INDIAN STUDENTS IN OREGON AND ALBERTA

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This paper explores the relationship between parental behavior and student attitudes towards the issue of going on to further training after high school graduation. The data here reported respresent a further step in the analysis of information gathered in a more comprehensive survey of attitudes among Oregon and Alberta high school students during the past two years. (1)

The Hypotheses

Three related hypotheses governed the specification and collection of data among the four populations sampled in the present study. These were: (1) that parental behavior which is positive and supportive will influence student attitudes in a parallel direction; (2) that Indian and non-Indian students differ in their own and perceived parental attitudes towards going on to further training after high school; and (3) that the Alberta populations will differ from the Oregon populations *pari passu* respecting the same issue because of cultural differences.

The Criterion Variables

The criterion variables, *i.e.,* the behavioral responses one seeks to predict, consist of two questions, one of which elicits information about the student's personal attitudes towards going on to further training and the other about attitudes held by parents as perceived by the student himself. The specific wording of these questions is given below in another context.

The Predictor Variables

The predictor variables, *i.e.,* the items of information on the basis of which one would make predictions about behavioral responses to the questions comprising the criterion variables discussed above, are three in number. In addition to the two given variables of ethnicity and nationality, a third item is employed in the analysis as a predictor variable. This consists of a factual report on parental behavior as perceived by the students. Specifically, the wording of

*The Harry Zenter named as author of a previous article in this Journal (Vol. VII, No. 4, page 211) should have read Henry Zentner. Our apologies.

the question was: "How much pressure do your parents or guardians put on you to think about going on to further training?", with response categories including "a great deal", "some", "very little", and "none at all". (2) Although other items similar to this one were included in the questionnaire and show a high degree of inter-correlation with it, the one employed here may be regarded as constituting a basic parameter of parental behavior which one may expect to determine in considerable measure the nature of the student's attitudes towards the issue represeinted by the criterion variables cited above.

The distribution of responses made by students to this question showed that both Oregon and Alberta Indian populations had a higher proportion of students reporting "a great deal" of parental pressure to think about going on to further training than did either the Oregon or Alberta non-Indian populations (see Table I). The percentages were 40 per cent among Oregon Indians, 52 per cent among Alberta Indians, 26 per cent among Oregon Whites, and 36 per cent among Alberta Whites.

TABLE I

DISTRIBUTION OF RESPONSES TO THE QUESTION: "HOW MUCH PRESSURE DO YOUR PARENTS OR GUARDIANS PUT ON YOU TO THINK ABOUT GOING ON TO (COLLEGE) FURTHER TRAINING?"

	O.I. N=52 %	O.W. N=304 %	A.I. N=115 %	A.W. N=335 %
Response Categories				
A great deal	40.00	26.97	52.17	36.12
Some	29.00	41.45	33.04	44.78
Very little	23.00	17.76	13.91	14.63
None at all	8.00	13.82	0.87	4.18
No answer	.....	.....	.....	0.30

O.I. = Oregon Indians
O.W. = Oregon Whites
A.I. = Alberta Indians
A.W. = Alberta Whites

In order to facilitate measurement of differences between populations the responses to this question were dichotomized at the point where those students who checked the response category "a great deal" could be treated as one sub-population while students who checked some other response category could be collectively dealt with as another. This procedure made possible measurement of differences between students whose parents behave most supportively and those whose parents are less supportive. Similarly it made possible measurements of differences on the basis of ethnicity and nationality.

Attitudes Toward Further Training

The question designed to elicit the student's attitude toward further training was worded: "How disappointed will you be if it turns out that you are unable to go on to further training after high school?".(3) The response categories provided were "very disappointed", "somewhat disappointed", "very little", and "not at all". The distribution of responses (see Table II) showed that the

TABLE II

DISTRIBUTION OF RESPONSE TO THE QUESTION: "HOW DISAPPOINTED WILL YOU BE IF IT TURNS OUT THAT YOU ARE UNABLE TO GO ON TO FURTHER TRAINING AFTER HIGH SCHOOL?"

	O.I. N=52 %	O.W. N=304 %	A.I. N=115 %	A.W. N=335 %
Response Categories				
Very disappointed	19.00	42.76	71.30	58.21
Somewhat disappointed	33.00	30.26	26.09	32.04
Very little	29.00	10.53	1.74	6.87
Not at all	19.00	15.46	0.87	2.69
No answer	.....	0.99	.....	.....

O.I. = Oregon Indians
O.W. = Oregon Whites
A.I. = Alberta Indians
A.W. = Alberta Whites

proportions of students who checked the "very disappointed" category varied markedly between the four populations. The percentages ranged from 19 per cent among Oregon Indians through 43 per cent among Oregon Whites to 58 per cent among Alberta Whites and 71 per cent among Alberta Indians. In this respect Oregon Whites and Alberta Whites were more alike than were the two Indian populations.

It is possible that these variations in response patterns to the question may be accounted for in terms of differences in wording of the question put to the Oregon and the Alberta populations. The question put to the two Oregon populations contained the word "college" in place of the phrase "further training" which was used in the case of the Alberta populations, Conceivably, the term "further training" has broader connotations embracing any and all forms of further training, whereas the term "college" may be more restricted in its connotation and was interpreted as referring to professional or liberal education only. On the basis of this assumption the differences in response pattern lose some of their apparent significance. Nevertheless, it is noteworthy that the Alberta Indians

Table III

COMPARISON OF STUDENTS WHOSE PARENTS OR GUARDIANS PUT ON "A GREAT DEAL" OF PRESSURE TO THINK ABOUT GOING ON TO (COLLEGE) FURTHER TRAINING AFTER HIGH SCHOOL AND OTHERS ON RESPONSES TO THE QUESTION: "HOW DISAPPOINTED WILL YOU BE IF IT TURNS OUT THAT YOU ARE UNABLE TO GO ON TO (COLLEGE) FURTHER TRAINING AFTER HIGH SCHOOL?"

	Students whose parents put on "a great deal" of pressure to think about going on to (college) further training				Others			
	O.I. N=21 %	O.W. N=82 %	A.I. N=60 %	A.W. N=121 %	O.I. N=31 %	O.W. N=222 %	A.I. N=55 %	A.W. N=213 %
Response Categories								
Very disappointed	23.81	70.73	76.67	71.80	12.90	32.43	65.45	50.32
Less disappointed	76.19	29.27	23.33	28.20	87.10	66.22	34.55	49.77
No answer	.....	.....	.....	.....	.....	1.35	.....	.....

O.I. = Oregon Indians
O.W. = Oregon Whites
A.I. = Alberta Indians
A.W. = Alberta Whites

Chi-square values:

1. Comparison of highs and lows on the predictor variable = $X^2 = 52.51$ p.01
2. Indian vs. non-Indian comparison on the predictor variables = $X^2 = .64$ n.s.
3. Oregon vs. Alberta comparison on the predictor variable = $X^2 = 38.63$ p.01
4. Indian vs. non-Indian comparison among those who are high on the predictor variable = $X^2 = 1.94$ n.s.
5. Indian vs. non-Indian comparison among those who are low on the predictor variable = $X^2 = .76$ n.s.
6. Oregon vs. Alberta comparison among those who are high on the predictor variable = $X^2 = 4.66$ p.05
7. Oregon vs. Alberta comparison among those who are low on the predictor variable = $X^2 = 27.94$ p.01

evidenced the highest degree of concern about going on to further training.

Cross-tabulation of the responses to the question on the student's disappointment in the face of inability to go on to further training with those on the question concerning parental pressure to think about going on to further training disclosed a somewhat varied result (see Table III). A comparison of all students who were high on the parental behavior variable with all those who were low revealed a difference that is statistically significant at the .01 level. It is clear, therefore, that parental behavior influences the degree of dissappointment which the students reported concerning inability to go on to further training.

A comparison of all Indian students with all Whites showed that differences along ethnic lines were not statistically significant. In other words, the attitudes of Indian and non-Indian students are nearly identical in respect of this issue. Alternatively, differences between Indian and White students who were high on the parental behavior variable were significant at the .01 level, while differences between those who were low on the parental behavior variable were not statistically significant. Thus it is evident that the degree of disappointment reported by students who were high on the parental behavior variable was influenced by both ethnicity and parental behavior, while among those who were low ethnicity was not an influential factor.

Differences in response pattern along nationality lines were again statistically significant. The degree of disappointment at the prospect of inability to go on to further training was therefore influenced by nationality. When all Oregon students who were high on the parental behavior variable were compared with all Alberta students who were also high, the difference was significant at the .05 level. Alternatively, a comparison of all Oregon students who were low on the parental behavior variable with all Alberta students who were also low gave a difference that was significant at the .01 level. It is apparent therefore that when parental behavior is held constant, the degree of disappointment at the prospect of inability to go on to further training is influenced by nationality.

The question touching on the student's perception of parental disappointment should he decide not to go on to further training was phrased: "If you don't decide to go onto (college) further training, how disappointed in you will your parents or guardians be?". The response categories provided were "a great deal', "some", "very little", and "not at all". The distribution of responses showed that the proportions of students in each of the four populations who checked the category "a great deal" varied from approximately 40

TABLE IV

DISTRIBUTION OF RESPONSES TO THE QUESTION: "IF YOU DON'T DECIDE TO GO ON TO (COLLEGS) FURTHER TRAINING, HOW DISAPPOINTED WILL YOUR PARENTS OR GUARDIANS BE?"

Response Categories	O.I. N=52 %	O.W. N=304 %	A.I. N=115 %	A.W. N=335 %
A great deal	44.00	39.80	58.26	64.18
Some	40.00	31.58	35.65	30.75
Very little	13.00	19.08	5.22	4.18
Not at all	2.00	9.54	0.87	0.90
No answer	.....	.....	.....	.....

O.I. = Oregon Indians
O.W. = Oregon Whites
A.I. = Alberta Indians
A.W. = Alberta Whites

to 60 per cent (see Table IV). The percentages ranged from 40 among Oregon Whites through 44 per cent among Oregon Indians to 58 per cent among Alberta Indians and 64 per cent among Alberta Whites.

Cross tabulation of responses to this question with those on the question bearing on parental pressure to think about going on to further training again yielded a parellel result (see Table V). A comparison of all students who were high on the parental behavior variable with all those who were low gave a difference that was significant at the .01 level. The influence of parental behavior on the degree of perceived parental disappointment is thus apparent.

Ethnicity by contrast was not a factor influencing the degree of perceived parental disappointment, since differences along ethnic lines were not statistically significant. When Indian students who were high on the parental behavior variable were compared with all White students who were also high, the difference was not statistically significant. Similarly, when Indian students who were low on the parental behavior variable were compared with all White students who were also low the difference is not statistically significant.

Comparisons on the nationality dimension gave different results. Differences in degree of perceived disappointment on the part of parents as between the Alberta and Oregon populations were significant at the .01 level. Inter-nationality comparisons among both students who were high on the parental behavior variable as well as among those who were low also gave differences which were significant at the .01 level. Thus, when parental behavior is held

Table V

COMPARISON OF STUDENTS WHOSE PARENTS OR GUARDIANS PUT ON "A GREAT DEAL" OF PRESSURE TO THINK ABOUT GOING ON TO (COLLEGE) FURTHER TRAINING AND OTHERS ON RESPONSES TO THE QUESTION: "IF YOU DON'T DECIDE TO GO ON TO FURTHER TRAINING, HOW DISAPPOINTED WILL YOUR PARENTS OR GUARDIANS BE?

	Students whose parents put on "a great deal" of pressure to think about going on to (college) further training				Others			
	O.I. N=21 %	O.W. N=82 %	A.I. N=60 %	A.W. N=121 %	O.I. N=31 %	O.W. N=222 %	A.I. N=55 %	A.W. N=213 %
Response Categories								
A great deal	66.67	74.39	85.00	93.39	32.26	27.03	29.09	47.42
Less disappointed	33.33	25.61	15.00	6.61	67.74	72.97	70.91	52.58
No answer	.....	.....	.....	.....	.....	.....	.....	.....

O.I. = Oregon Indians
O.W. = Oregon Whites
A.I. = Alberta Indians
A.W. = Alberta Whites

Chi-square values:

1. Comparison of highs and lows on the predictor variable = $X^2 = 171.84$ p.01
2. Indian vs. non-Indian comparison on the predictor variables = $X^2 = .21$ n.s.
3. Oregon vs. Alberta comparison on the predictor variable = $X^2 = 38.06$ p.01
4. Indian vs. non-Indian comparison among those who are high on the predictor variable = $X^2 = 1.3$ n.s.
5. Indian vs. non-Indian comparisons among those who are low on the predictor variable = $X^2 = 1.43$ n.s.
6. Oregon vs. Alberta comparison among those who are high on the predictor variable = $X^2 = 15.58$ p.01
7. Oregon vs. Alberta comparison among those who are low on the predictor variable = $X^2 = 14.46$ p.01

constant differential degrees of perceived parental disappointment at the propect of the students' failure to go on to further training were evident. In other words, the two nationality groups respond differently to supportive behavior on the part of their parents.

Summary and Conclusions

Having reviewed the findings, the question can now be raised concerning the implications of the data for the hypothesis which animated the inquiry.

The first hypothesis, namely, that parental behavior which is positive and supportive will influence student attitudes in a parellel direction, was consistently borne out by the findings. Students whose parents put on "a great deal" of pressure to think about going on to further training reported themselves "very disappointed" at the prospect of being unable to go on to further training after high school more frequently than did students whose parents exerted less pressure. Similarly, students who reported "a great deal" of parental pressure to think about going on to further training also more frequently reported that their parents would experience "a great deal" of disappointment should they decide not to go on to further training than did others. The importance of supportive parental behavior, therefore, was evident throughout.

The second hypothesis which asserted that Indian and non-Indian students would differ in their own and perceived parental attitudes towards going on to further training was, on the contrary, not supported by the findings. Indian students reported themselves "very disappointed" at the prospect of being unable to go on to further training as frequently as did White students. Again, Indian students reported as frequently as White students that their parents would be "very disappointed" if they decided not to go on to further training. Such differences as did appear in the data between the two ethnic groups were not statistically significant. It was evident, therefore, that Indian students and their parents—judging from the perceptions of the students—were as interested and concerned about further training after high school as non-Indian students and their parents.

The third and final hypothesis was again completely supported by the evidence. Although fewer Oregon Indians than Oregon Whites reported themselves "very disappointed" at the prospect of being unable to go on to further training after high school, more Alberta Indians than Alberta Whites did so. Nevertheless, fewer Oregon Indians than Alberta Indians reported themselves "very disappointed" at the prospect of being unable to go on to further training. Correspondingly, fewer Oregon Whites than Alberta Whites

responded in the same manner. Concerning the degree of parental disappointment should the student decide not to go on to further training the same pattern of response is maintained. Alberta Indians more frequently reported their parents would experience "a great deal" of disappointment than did Oregon Indians and Alberta Whites more frequently than Oregon Whites. This finding strongly suggests that the rural and small town cultures of the U.S.A. lags behind those of Canada at the present time in the stress which it places upon further training after high school. Nevertheless, from another point of view the high degree of similarity in response patterns between the two national groups is as important as are the differences.

One major implication for educational policy and administration appears to follow from these findings. The essential similarity between Indian and non-Indian students (within national cultures) in the perceptive, affective, and cognitive substructure of attitudes towards further training after high school strongly argues that a similar approach to educational policy and administration of services to the two types of populations should be considered as an alternative to the current disparate approaches. Admittedly, at the level of overt action there may be important variations in behavior which appear as a function of situational factors, differential reference group structures, and the like. And herein lies the primary challenge to both further sociological research and to the art of policy-making and administration.

NOTES

1. The several populations involved in the study are described in a previous paper appearing in this journal. See Henry Zentner, "Parental Behavior and Student Attitudes Towards High School Graduation Among Indian and Non-Indian Students in Oregon and Alberta", *Alberta Journal of Educational Research,* December, 1962, Vol. 8, pp. 211-219.
2. In the case of the Oregon populations the word "college" was used in the question in place of the phrase "further training".
3. This latter category of students is referred to as the "less disappointed" in Table 3.
4. Students checking some other response category are referred to as the "less disappointed" in Table 5.

AN EVALUATION OF THE EFFECTIVENESS OF THE USE OF FILMS IN DIVISIONAL AND COUNTY SCHOOLS IN ALBERTA

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and
H. T. Sparby

Teacher productivity is measured by the quality and amount of learning that takes place in the classroom. That audio-visual materials are effective tools to increase teacher productivity is widely recognized. Of the audio-visual media available, the 16 mm. motion picture film offers, perhaps, the greatest challenge.

Statement of the Problem

It was the purpose of the study reported here[1] to determine how effectively motion pictures are used in the divisional and county schools of Alberta. The study was particularly concerned with the degree of competency of teachers in using films in classrooms enrolling elementary and junior high school grades. An attempt was made to get answers to specific questions which were grouped under seven headings: film materials, selection of films, distribution and location of films, equipment, film-use practices, administration and supervision, and present needs and problems.

Method of Procedure

A survey of related studies and literature supplied the information necessary for designing two questionnaires from which most of the data for this study were obtained, a general questionnaire and a utilization questionnaire.

General questionnaires, dealing with the general status of film utilization by teachers and by schools as a whole, were sent to a random sampling of schools. The sampling was secured by selecting every seventh school from lists supplied by the divisions and counties. On this basis, questionnaires were mailed to 103 schools. Each school received a questionnaire for each teacher and a separate one for the principal. Among the 524 teachers who had an opportunity to participate in the survey, 62 reported that films were not being used in their schools. Thus the maximum number who had an opportunity to participate actively was 462. Of this number, 363 or 78% completed and returned usable questionnaires.

1. G. Kravetz, *An Evaluation of the Effectiveness of the Use of Films in Divisional and County Schools in Alberta.* Unpublished M.Ed. thesis, University of Alberta, 1961.

Utilization questionnaires were sent to principals of schools where specific films from a selected list, provided by the Alberta Audio-Visual Aids Branch, were being shown. These specific films with optimum grade levels were: "Spotty, Story of a Fawn," grades 1-2; "Eskimo Children," grades 3-4; "Teeth Are to Keep," grades 3-4; "Our Earth," grades 5-6; "What is Soil?," grades 5-6; "Day and Night," grades 7-9; "Your Forest Heritage," grades 7-9. Each teacher of a class viewing one of these films was asked to complete a questionnaire. Sixty-seven schools out of the 79 which were contacted returned a total of 22 utilization questionnaires.

It was attempted to determine the adequacy of the film program by comparing existing conditions and practices with criteria and standards which recent research in the field has accepted as reflecting desirable conditions and practices.

Most Pertinent Findings

I. Materials

Many teachers use films but there seems to be some question as to the appropriatesness or timeliness of the film showings.

1. Divisional and county teachers use only slightly fewer than the recommended minimum number of 35 films per year.
2. Many teachers are able to use this minimum number, however, only because they use films ordered by other teachers.
3. The complaint that films are not of suitable grade level probably results from the fact that many films are shown, either because they just happen to be on hand or because classes view films during a film period attended by the whole school or a large portion of it.
4. The number of teachers satisfied with the film supply is about the same as the number dissatisfied.
5. The major reason for teachers dissatisfaction with the film supply is that films are not available at the exact time they are needed.

II. Selection of Films

Although there is an awareness that teacher judgment should be the basic factor in the selection of films, teachers are experiencing some difficulty in getting information about new materials as these become available.

1. Either directly or through committee representation, teachers are given an opportunity to take an active part in selecting films.
2. Typically only 39 percent of the classes viewing films see films which were ordered for their specific use.

3. Teachers have ready access to up-to-date film catalogues.
4. Most teachers feel, however, that they are not kept properly informed of what new films are available for their use.
5. The films which are selected by teachers from the Audio-Visual Aids Branch are meeting the recognized criteria for educational films.

III. Distribution and Location of Materials

The extent of film utilization depends in large part upon the accessibility of materials. Teachers tend to forego using films unless the films are readily available for use.

1. Generally, teachers feel that they have to order films too far in advance and that even then they are often not able to get the films requested at the time desired.
2. The main source of supply of films is the Audio-Visual Aids Branch of the Department of Education at Edmonton which, under present conditions, is not able to handle expeditiously all requests for films.

IV. Equipment

The extent of film utilization is also determined by the availability of projection equipment. Since expensive and specialized equipment is necessary to make use of films, it becomes a major administrative problem to provide this equipment.

1. Most schools of ten rooms or fewer have adequate projection equipment, but the larger schools do not have the recommended minimum number of projectors.
2. Although projection equipment available in the schools is of considerable variety, almost 60 percent of the models are of one make (Bell and Howell). Another 30 percent is accounted for by two makes (Victor and Movie Mite).

V. Film Use Practices

To some extent, a film can teach by just being viewed, but good utilization greatly increases its effectiveness. Teachers who use films do not perform at the highest level of efficiency. This is borne out by the following findings:

1. Most films are shown elsewhere than in the classroom.
2. The main purpose for showing a film is usually for general interest only.
3. The grade level of a film is very often ignored by the teacher.
4. Many showings are not limited to one class at a time.
5. At the majority of showings more than one film is viewed.

6. Teachers commonly make little effort to prepare themselves or their classes for the showing of a film.
7. Most films shown by teachers are not requested by them.
8. Most showings involve little more than the actual viewing of the film.
9. Repeated showings are rare.
10. Many teachers are not able to operate projectors. Very few feel that they are capable of minor servicing of a projector such as oiling or replacing a burned-out bulb.
11. There is a lack of in-service training programs which could be used to improve teacher competency in the classroom use of films. Not one school or teacher reported the avaliability of professional periodicals in this field.
12. Most teachers feel that they received insufficient instruction in the classroom use of films during pre-service training.
13. Very few schools make provision for student assistance to the teacher in operating projection equipment.
14. Teachers are cognizent of and concerned about their own deficiencies in film usage and would like to eliminate them.

VI. Administration and Supervision

The decisions of the administrators and the supervisors in a school system determine in large part the social climate of the school, which in turn has an important effect on the methods and materials used by teachers.

1. There is virtually no audio-visual leadership at the local level where teachers are most acutely aware of the need for supervisory assistance.
2. The main administrative and supervisory control is at the provincial level where it is active, but of insufficient quantity to cover the whole province adequately.
3. The film coordinator's duties at the school level are usually performed by the principal.
4. It is rare to find a film coordinator who has had special training in audio-visual methods.
5. Little effort is made to provide film coordinators with time free from classes to carry out their duties.
6. Most schools do not have an organized check-out system for equipment and films.

VIII. Present Needs and Problems

Principals rated the following as the three most urgent problems in film utilization:

1. Visual aids not available in the classroom when most needed.
2. Teachers insufficiently trained in the use of visual aids.
3. Insufficient budgetary provision for visual aids.

Principals thought that the following services would be most desirable:

1. Lesson plans to show how audio-visual aids can be correlated with the course of study.
2. In-service courses in visual instruction given at conveniently located centres.
3. Film guides giving content of every film with questions and suggestions for class use.

Recommendations Resulting From Study

There is a task to be done and a challenge to be met by everyone with an understanding of the power of audio-visual tools in teaching. A beginning might be made by considering the following recommendations:

1. The fact that the Audio-Visual Aids Branch of the Department of Education is not able to handle adequately the large number of requests for films suggests that some form of decentralization of this service is now desirable.
2. The Faculty of Education should give consideration to increasing the emphasis upon the audio-visual program in both pre-service teacher training and in summer school courses for teachers. This would help to provide a more nearly adequate supply of trained and interested personnal who would be available to organize and conduct in-service courses within school systems.
3. Stimulating and encouraging teachers to grow is essentially a responsibility of local school administration. Superintendents of schools and principals should therefore be made increasingly aware that it is their responsibility to organize specific services for the teachers in their school systems so that they can and will make intelligent use of films.

AN INTRODUCTION TO THE SAFRAN CULTURE REDUCED INTELLIGENCE TEST AND SOME REPORTS ON ITS VALIDITY FROM CURRENT STUDIES

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This article has two major purposes; (1) to introduce the reader to the S.C.R.I.T., a new test which is currently under experimentation, and (2) to report findings of this test which have appeared in current studies.

PART I

Purpose of the S.C.R.I.T.

The test was initially constructed in 1957, to assess the intelligence of foreign-born children in the Calgary Public Schools. There was also considerable evidence that environmental deprivation restricted the development of intelligence.[1] As a consequence, a scale had to be devised which would test adequately the potential of these groups of children for educational purposes.

Vernon, in a recent lecture at the University of Alberta, mentioned several factors which seem to impair intellectual development. He contended that poverty, unstable family life, abbreviated schooling, and a language handicap affected the school child.[2]

Anastasi has inferred that cultural and racial differences in intelligence test scores could result from values and goals initially stressed in a given culture. Children living in cultures stressing physical activities appear to pay little heed to intellectual abstractions. On the other hand, in cultures stressing the intellectual pursuits the reverse is true.

Although it appears to be a hopeless task to design a test which is 'culture-free," it is still possible to construct tests which appear to reduce the effect of culture to a minimum. These may be termed "culture-reduced" tests. Elley has defined this type of test as "one" which holds verbal symbolism and past learning to a minimum and which uses a medium which is relatively familiar to all examinees. West postulates the following:

> " . . . in developing a rationale for culture-reduced tests, it may be assumed that, since all men live on the same planet, belong to the same animal

1. Della-Dora, D., "The Culturally Disadvantaged," Lecture delivered at the Western Central Regional Conference (CEC) Winnipeg, Manitoba, November, 1962.
2. Vernon, P. R., Lecture delivered at the University of Alberta, April, 1962.

species, and have the same biological needs, they may share, but with considerable variation, certain universal experiences of crucial importance to the development of intelligence behavior."

In recent year, educators in the field of mental testing, have become more concerned by the fact that test performance depends upon the experience the person has had. Many critics have asserted that the typical intelligence test is based upon the urban middle-class American culture, highly verbal in content and emphasizing speed. Obviously, the child from a deprived home or with a foreign language background has been handicapped on the common group intelligence tests used in our schools today. It is for these reasons that a "common denominator" must be found in appraising capacity. A test of this type must measure relatively complex abilities, and must emphasize problem-solving rather than memory or specific learning. The reading factor must be at a minimum so that handicapped readers cannot be penalized. Finally, it must be a "power test" rather than a "speed test," since speeded problem-solving tests place a premium on quick recall of material already learned rather than on the pupil's ability to work out solutions to new problems not previously encountered.

The S.C.R.I.T.

The S.C.R.I.T. contains 36 items of a non-verbal perceptual reasoning type. The left side of each page presents a pattern or problem, the solution to which is the choosing of the correct item on the right side of the page. The units for the patterns are simple shapes, solidly coloured red or blue. Each item is composed of a series of geometrical figures which form a pattern according to some principle, e.g., an analogies pattern, a movement pattern, or a sequence pattern, etc. The principle of solution involved in each item, in many cases, is unique and the individual may be forced to revise his "mental set" from item to item. Simple colour or shape provides clues for the first few pages. Then increasingly, two or more ideas are inherent in the correct choice of unit from the right hand side. The progression of problems from easy to more difficult results in the testee learning how to do the problems and assists in holding his interest. In later stages there are three easy items spaced into the test to re-motivate failing persons. In many respects it is somewhat akin to the Progressive Matrices except that the figures form a series rather than a matrix. In contrast to the Progressive Matrices, colour is also a significant principle upon which the series is based, whereas in the Progressive Matrices colour is quite irrelevant. The 36 item test is contained in a simple printed booklet which is reusable and answer sheets are provided for individual or group testing.

Range and Suitability of the Test

The test has been prepared for elementary school pupils, Grades I to VI. In some cases it has been used with older people as well. It should prove to be especially suited to the needs of the culturally deprived, the lower socio-economic groups, and children of foreign backgrounds.

Administration of the Test

The test can be administered individually or as a group measure. Administration procedures are presented in two separate pamphlets, one dealing with Grades I, II, and III, and the other with Grades IV, V, and VI. The test may be administered in pantomime by manipulating cut-outs representative of the examples, and language need not be used.

Reliability of the Test

Table I indicates the reliability of the test in different grade levels administered on a sample group of elementary school children in the Calgary Public Schools. Coefficients ranged from .75 to .86 and the test-retest coefficient of reliability on a sample of 107 children was .83.

TABLE I

COEFFICIENTS OF RELIABILITY FOR AN ELEMENTARY SCHOOL POPULATION (N = 450)
(Kuder Richardson Formula 21)

Grade	Coefficient r
I	.75
II	.78
III	.84
IV	.86
V	.77
VI	.79

Validity of the Test

Measures of congruent validity have been compiled by correlating S.C.R.I.T. results with other group intelligence tests used in the Calgary Public Schools. Further correlations have been obtained between S.C.R.I.T. and school achievement.

Tables II and III indicate the correlation coefficients obtained. Detroit Beginning First Grade and Detroit Advanced Intelligence Tests are administered in Grade I and the California Test of Mental

Maturity (total I.Q.'s) is administered at the end of Grade III. The correlations were obtained from the scores on the students in various grades, even though intelligence tests may have been administered earlier.

TABLE II

CORRELATIONS BETWEEN S.C.R.I.T. AND THREE GROUP INTELLIGENCE TESTS

Grade	I	II	III	IV	V	VI
Det. Beg.	.55	.65	.40	.....	.....	.....
Det. Adv.	.52	.55	.....	.....	.....	.....
C.T.M.M.	.....	.....	.....	.63	.71	.41

TABLE III

CORRELATION BETWEEN S.C.R.I.T. AND ACHIEVEMENT (TEACHERS' GRADES)

Grade	Coefficient r
II	.52
III	.48
IV	.78
V	.75
VI	.43

It can be seen that there is a distinct relationship between achievement and the S.C.R.I.T. and a lesser correlation against the group intelligence tests. This is plausible since the S.C.R.I.T. is culture-reduced and the others are culture-loaded.

Test Norms

Tentative test norms have been compiled on 450 Calgary Public school pupils from Grades I to VI and presently are being revised in light of further testing. The norms are in percentile form but some work is being done with standard scores to compile deviation I.Q.'s (Standard Deviation = 15 and Mean = 100).

PART II

Validity Studies

MacArthur and Safran were authorized to initiate a research study dealing with selection procedures for streaming in elementary schools in Calgary. The general purpose of this project was to identify and study tests of intellectual ability which in the Calgary streaming program will (a) improve group procedures and (b)

assist in adapting teaching to individual potential, particularly for individuals under low socio-economic, foreign language, or similar handicap. This project is in progress and will deal with specific problems which have been detailed. MacArthur and West in the mean time have used S.C.R.I.T. extensively on a Metis Indian population and it is from their reports that the following table and comments have been gleaned. Results from an isolated study by Safran and Pettifor on a senile population using the S.C.R.I.T. have also been reported.

MacArthur's study examined the construct validity of a number of economical measures of intellectual potential for a sample of 147 Metis Indians whose culture was different. The S.C.R.I.T. was included in the study. Among the criteria which were adopted to determine construct validity, the following were suggested: (a) high saturation on general intellectual ability as indicated by principal factor analyses , (b) relatively less bias against the Metis than that of commonly-used group intelligence tests, and (c) moderate correlation with school achievement.

The study reports that tests best meeting the three criteria above were the Standard Coloured Progressive Matrices, Cattell Test of g, Scale 2, and the Safran Culture Reduced Intelligence Test. Table IV and V have been taken from this report to indicate the appropriate position of the S.C.R.I.T. test in the study. The S.C.R.I.T. was used experimentally in Grades VII and VIII even though it is best adapted to the elementary school.

"THE CONSTRUCT VALIDITY OF A NUMBER OF MEASURES OF INTELLECTUAL POTENTIAL FOR AN ALBERTA METIS SAMPLE"

R. S. MacArthur, University of Alberta

"*Criteria for Construct Validity*—high loading on general intellectual ability as indicated by principal factor analysis, relatively less bias against Metis than commonly-used group intelligence tests, and moderate correlation with school achievement.

Sample—147 Metis of both sexes attending school at Faust, 4 groups reported here; low socioeconomic status (Blishen Index Mean 38, S.D. 5.2) language other than English (Cree, some French) used in home on average more than half-time.

Tests Used—Progressive Matrices (Standard and Coloured), IPAT Cattell Test of 'g2' Scale 2, Lorge-Thorndike Non-Verbal Intelligence Test (Levels 1, 2, 3, 4), Safran Culture-Reduced Intelligence Test, California Short Form of Mental Maturity (Prim-

ary and Elementary), Otis Quick-Scoring Mental Ability Test, Occupational Status (Blishen), Language Background, California Achievement (Beta) Battery (Primary, Elementary, Intermediate), School Marks (End-of-year average), Tests of General Ability (4 levels), Holzinger-Crowder Uni-Factor Tests (2 scores), Detroit Beginning First-Grade Intelligence Test.

TABLE IV

EXAMPLE OF ROTATED FACTOR MATRIX: GRADE 7 AND 8 SHORT BATTERY (LOADINGS BELOW .25 OMITTED)

	I g	II v:cult.	III n	h^2
1. Prog. Mat.	.80	.....	.....	.72
2. Cattell	.79	.28	.....	.72
3. L-Th. Total	.59	.....	.58	.74
4. S.C.R.I.T.	.92	.....	.....	.91
5. CTMM Non-Lang.	.66	.....	.61	.83
6. CTMM Lang.	.63	.67	.....	.86
7. Otis	.49	.79	.....	.87
8. Calif. Reading	.46	.75	.....	.80
9. Calif. Arithmetic	.44	.49	.60	.79
10. Calif. Language	.43	.52	.62	.84
11. TOGA Tot.	.32	.79	.....	.73
Prop. Common Variance	.48	.34	.18	1.00
Prop. Total Variance	.39	.27	.14	.80

TABLE V

SUMMARY EVALUATION OF NINE CULTURE-REDUCED TESTS

	Mdn. 1st Unrot. Fact	Mdn. Communality	Mdn. of Mean T-scores	Mdn. Schl. Achievement
1. Prog. Mat.*	.79	.80	41	.54
2. Cattell*	.77	.78	40	.49
3. S.C.R.I.T.*	.74	.80	40	.48
4. L-Th. 3	.65	.82	42	.39
5. L-Th. 2	.72	.74	41	.52
6. L-Th. 1	.60	.73	36	.40
7. L-Th. Tot.	.77	.67	34	.60
8. CTMM Non-Lang.	.48	.87	42	.31
9. CTMM Spat.	.44	.78	46	.29
10. CTMM Total	.....	.....	30	.54
11. Detroit	.56	.79	31	.40

*Tests best meeting criteria adopted for contruct validity.

MacArthur concludes with these comments:

" . . . these findings lead to a question of considerable both theoretical and practical interest—why are tests such as the first three (Matrices, Cattell and S.C.R.I.T.) showing up as culture-reduced measures of general intellectual ability? Two answers, for further exploration, suggest themselves:

1. They are miniature learning situations, samples of learning on-the-spot, using simple miniature symbols not very dependent on particular previous learnings. This further suggests that attempts to improve on such tests should attempt to capitalize on the whole of learning theory, in order to devise more efficient miniature learning situations.
2. They are sampling not any old kind of learning, but ability to educe relations and correlates, to form concepts and principles and to use them in new situations. This further suggests that attempts to improve on such tests should attempt to capitalize on such work in concept formation as Brunner's, on the development psychology of Piaget, and on the transfer theory of Ferguson."

West was charged with the problem of selecting promising culture-reduced instruments showing a minimum of cultural bias when testing the Metis and Indian children at Faust, Alberta, and Fort Simpson, N.W.T. MacArthur's study used factoral analysis to determine the "g" loading. West's study used primarily conventional statistics to find significant differences among the tests.

Table VI, adapted from West, indicates a summary of findings for the Grade I Battery administered in these areas.

TABLE VI

SUMMARY OF FINDINGS FOR THE GRADE I BATTERY OF TESTS AS EVALUATED AGAINST FOUR CRITERIA

No. Test	σ-dev.	Faust: Significantly-less biased than—	Ft. Spn.: Significantly less biased than—	*	r_A	r_O
1. S.C.R.I.T.	.41	2,3,4,5,6,7,	6,7,	R	.50	.36
2. L. Th. II	.76	5,6,7,	6,7,	R	.49.	39
3. L. Th. III	.81	5,6,7,	5,6,7,	R	.48	.37
4. Prog. Mat.	.89	7,	7,	R	.52	.39
5. L. Th. Total	1.24			C	.56	.41
6. L. Th. I	1.44			C	.40	.30**
7. Det. Beg.	1.79			C	.51	.27**

*—Classification: C—conventional: R—Culture-reduced

r_A—correlation with achievement

r_O—mean correlation with other tests of the battery

**—not significant at .05 level

From Table VI, West comments that the S.C.R.I.T., the Lorge-Thorndike, and the Progressive Matrices satisfy his criteria for measuring culture-reduced tests. He states:

> " . . . all are significantly less biased than the Detroit Beginning First-Grade Intelligence Test. Differences in extent of cultural bias among these tests are small; however, the S.C.R.I.T. probably shows greatest promise as a cross-cultural test at this level. It has least bias for both samples. For the Faust sample it shows significantly less bias than any other test."

In his summary of results he makes some further comments about the tests as measures of intelligence A^1 which he defines as "the present potential of an individual for future development of intelligent behavior."

Test instruments should be chosen with the following criteria in mind: (a) their "g" loading, (b) absence of group factors, (c) less bias against the Metis Indians, and (d) moderate correlation with school achievement.

TABLE VII

RANK ORDER OF TESTS MEETING THE FOUR CRITERIA MENTIONED ABOVE

Grade	I	Combine II III IV	Combine V VI	Combine VII VIII
Rank order of tests				
1.	S.C.R.I.T.	CTMM Non-Lang.	Prog. Mat.	Lorge-Thorn.
2.	Lorge-Thorn.	Lorge-Thorn.	Cattell	Prog. Mat.
3.	Prog. Mat.	S.C.R.I.T.	S.C.R.I.T.	CTMM Non-Lang.
4.		Prog. Mat.		Cattell

He concludes with the following comment:

> " . . . it will be noted that the Progressive Matrices is recommended at all levels . The S.C.R.I.T. also meets the four criteria of the three levels for which it is appropriate."

The report by Safran and Pettifor deals with an experimental study of an aged group at the Colonel Belcher Hospital, Calgary, Alberta. The S.C.R.I.T. was administered to 25 elderly patients between the ages of 60 and 87 with a mean age of 71.4. All gave evidence of fair visual ability. Results indicated that the group mean score was 16.64 and ranged from 5 to 24, indicating considerable spread in perceptual reasoning among this group. Pettifor also observed the behavior of this elderly group on the test behavior and he dealt specifically with their eye movements, perseveration, and impotence when using the test. He implies there

is a correlation with senility and wonders if the test scores indicate a measure of organic deterioration of the central nervous system. He also asks:

> " . . . could it be that there is a loss in the use of experience? This would be cognitive loss. Thus the old person sees the pattern but the loss of the ability to relate experience inhibits the formation of the concept."

Pettifor concludes from his study on elderly patients that the S.C.R.I.T. may find a place among the tests which are useful to the clinician for the assessment of degrees of senility.

Summary

This article has introduced the Safran Culture Reduced Intelligence Test and has presented in discussion form some of the research findings on this measure.

It appears that the test has sufficient validity and reliability to warrant further experimentation. Supporting statistics from other studies have been included.

The test appears to be a reasonably good measure of potential for those children from different cultures, or lower socio-economic strata. Implications have also been inferred concerning its use on a senile population.

It would seem that this instrument could become a reasonably valuable tool for the test user.

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CHANGES IN ATTITUDES AND BEHAVIOR AS A FUNCTION OF METHODS COURSES

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To date no one has developed a satisfactory technique for the measurement of teacher competence. In spite of this however, teacher educators continue to offer methods courses alleged to increase this competence. These instructors often make no attempt to measure the end products of their courses except as they are reflected in student knowledge about the contents of textbooks. And, since in practice there is seldom a test of the student's knowledge when he enters a given course it cannot be said that the final examination even measures an increase in his knowledge as a result of the course. But, even if this increase in knowledge did take place, and a few of us would question that it did, there is no guarantee that such an increase would in fact result in greater teaching competence. If the methods instructor claims it will without substantiating this claim with empirical evidence he is merely claiming automatic transfer of training; a claim that research has failed to support.

The present study attempts to test the hypothesis that: 1. there is in fact no correlation between the knowledge gained through a methods course and teaching competence. 2. a methods course does (or can) change student attitudes concerning the subject area of that course and that these attitude changes will be reflected in the student's teaching competence.

The term *attitude* is used here rather than the less emotionally charged term *opinion* because it is felt that it best describes the processes under investigation. Language as taught in the courses concerned in the study cuts across the traditional methods of teaching language and therefore tends to generate attitudes rather than opinions in the students concerned.

Instruments

The attitude scale devised for the study consists of thirty-eight statements taken from Greene and Petty (1), Tidyman and Butterfield (2), and other language arts texts written or revised since 1950. A random selection of these statements was reversed so that they expressed the opposite point of view expressed by their authors. In this way, approximately half of the items require responses at each end of the seven point Thurstone (3) type scale. A typical positively stated item reads: "Diagramming sentences is largely an artificial and useless skill," to which the examinee responded by

circling one of: EA SA A U D SD ED, meaning he Entirely Agrees, Strongly Agrees, is Undecided, Disagrees, Strongly Disagrees or Entirely Disagrees with the statement.

A typical reversed statement reads: "Good language arts teachers teach grammar for its own sake." This statement is also followed by the seven point scale. Each of the thirty-eight items, then, should be answered at one or the other end of the scale insofar as the textbook authors and the instructor of the courses being evaluated are concerned. The first sample item given above should elicit the EA response while the second should call for the circling of the ED category.

If the U category in the scale is considered to represent zero and each category out from it in either direction is interpreted as unity, scores ranging from minus three (the number of units possible from U) times thirty-eight (the number of items) (—114) to plus this number (114) are possible.

Procedure

At the initial meeting of the Education 338 Summer School 1961 course and at the initial meeting of the Education 480 1961-62 academic year course, the students were asked to "please complete the following questionnaire." The questionnaire reads:

WHAT are your attitudes about language?

Read each of the following statements carefully and respond to them by circling the appropriate category on the right.

Circle the:

EA — if you are in Entire Agreement with the statement
SA — if you Strongly Agree but have some reservations
A — if you Agree but have serious reservations
U — if you can't make up your mind
D — if you Disagree, but find much merit in the statement
SD — if you Strongly Disagree but have some reservations
ED — if you are in Entire Disagreement with the statement

Respond to each statement in turn. Do not skip. Do not go back and change any response. Use a pen.

Statement	Attitude
1. Diagramming sentences is largely an artificial and useless skill	EA SA A U D SD ED

At the final meeting of each class the students were again handed the questionnaire blanks and were asked to "Please complete the following questionnaire." The first and second drafts of the questionnaire were identical except for the order of the items.

TABLE I

SUMMARY OF ATTITUDINAL CHANGES IN ED. 338 and 480 STUDENTS

Education 338					Education 480					
Student	Before	After	Change	Course Final Mark	Student	Before	After	Change	Course Final Mark	Practice Teaching Final Mark
1	19	65	+46	65	1	0	26	+26	51	65
2	51	68	+17	74	2	30	60	+30	66	60
3	35	31	— 4	75	3	27	64	+37	59	80
4	31	67	+36	59	4	3	59	+56	67	65
5	50	86	+36	87	5	29	63	+34	76	65
6	25	53	+28	50	6	22	52	+30	56	60
7	30	51	+21	60	7	15	46	+31	68	85
8	40	76	+36	70	8	18	39	+21	68	55
9	56	78	+22	55	9	21	47	+26	66	70
10	34	67	+33	59	10	34	75	+41	57	82
11	30	68	+38	53	11	4	39	+35	61	60
12	69	92	+23	58	12	11	77	+66	62	75
13	66	98	+32	65	13	4	70	+66	71	72
14	51	61	+10	70	14	11	71	+60	66	75
15	56	92	+36	55	15	16	18	+ 2	72	71
16	51	106	+55	59	16	17	67	+50	80	85
17	50	87	+37	57	17	2	42	+40	50	57
18	31	54	+23	59	18	33	60	+27	73	69
19	28	65	+37	66	19	35	90	+59	60	75
					20	36	49	+13	62	50
					21	0	51	+51	66	68
					22	19	42	+23	51	65
					23	29	48	+19	65	73
					24	48	53	+ 5	69	75
M's:	43.05	72.00	29.91	63.25		19.29	54.70	35.95	63.7	69.2
S.D.'s:	14.10	18.05	13.00	14.60		11.35	14.50	17.88	12.65	14.75

Note: The 480 group changed significantly more (.01) than did the 338 group.

Table I gives the results of both administrations of the attitude questionnaire together with the final academic grades assigned in each course. The Education 480 part of the table also gives the final grades in practice teaching.

An examination of this table reveals that the Education 338 students, who were certified teachers with teaching experience in the language arts before registering in the course, began their course with more "favorable" attitudes than did the 480 students, who had Bachelor's degrees in fields other than education, but who had no teaching certificates or teaching experience before entering the course. Both groups show significant changes in attitudes in the predicted direction, i.e. their attitudes more nearly approximated those of the experts and the instructors at the conclusion of the courses than they did at the outset. The 480 group attitudes changed significantly more (.01 level) than did the attitude of the 338 students indicating that the attitude level at the beginning of the course was a function of the net change.

A product moment correlation between the final marks awarded in these two courses and the changes in attitudes yielded a coefficient of correlation of —.06 indicating that there was no significant relationship between the final grades earned in the course and the changes in attitudes. A coefficient of .32 was obtained between final marks awarded in the 480 course and the final grades in Practice Teaching which, according to Fisher (5), is not significant at the .05 level. The correlation between the change in attitudes and the final grades in Practice Teaching was .40 which is significant at the .05 level.

Discussion

The present study failed to substantiate the supposition that increased knowledge about teaching methods as measured by the final examination in a methods course actually increases teacher competence as defined by the final marks in practice teaching. But, the hypothesis that attitudes concerning the subject taught correlate positively and significantly with teaching competence was substantiated.

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A COMPARATIVE STUDY OF THE PERFORMANCE IN ARITHMETIC OF EDMONTON, ALBERTA, AND CHRISTCHURCH, NEW ZEALAND, PUBLIC SCHOOL PUPILS OF COMPARABLE AGE AND GRADE LEVEL

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Today, the decreasing size of the world is reflected in the highly integrated structure of the free world's economy. This has resulted in the increased mobility of the population. While the facilitation of movement has always been one of the primary features of the Commonwealth, it is only recently that a sizeable migration has been occurring not only to or from the Motherland, but between the member nations. Consequently, the problems of the transferring of pupils from school to school, so familiar to us in Canada, are fast becoming of immediate concern at an international level and involving countries at opposite sides of the globe.

The present study sought to compare the arithmetic performance of a group of 11-12 year old public school pupils in two cities in two English speaking countries of the Commonwealth, Edmonton, Alberta, Canada and Christchurch, New Zealand. Arithmetic was measured by a standardized multiple choice arithmetic test produced and published in the United States. Although the basic plan appeared simple, problems of the comparability of groups were encountered immediately. For example, Edmonton Grade 6 students have had for the most part six years of schooling and are approximately twelve years old. Inasmuch as Christchurch pupils can start their formal schooling at age five, and in fact the vast majority do, pupils in New Zealand with the same number of years of formal schooling (Standard IV) are one year younger than Edmonton pupils, while New Zealand students of the same age range (Form I) have had one year more of formal schooling. Because of other differences in the two systems of brief comparison of the New Zealand arithmetic course of study and teaching methods will be made before the hypotheses of this study are stated.

The New Zealand Primary Arithmetic Syllabus

The following information has been based, for the most part, on the experience of one of the writers as a teacher in New Zealand and material presented in the New Zealand Department of Education *Primary School Syllabuses: Arithmetic* (1954). The writers have taken the liberty of quoting freely and paraphrasing closely this latter document, particularly the Introduction (pp. 3-9).

New Zealand has kept up with the general trends in teaching methods despite her insular and national outlook in many areas, and her great distance from both the United States and Britain, two countries which are among the foremost in educational experimentation and publication. Her curriculum policy makers have tried to avoid extreme tenets of particular educational philosophers and to assume the middle path (Borland, 1959).

1. *Scope*

The present arithmetic Syllabus in use in the grades equivalent to Alberta elementary grades was published in 1954. General opinion considered that the former syllabus' demands on the children of ordinary ability were excessive, with the result that the work attempted was often very incompletely mastered (p. 4). Believing thoroughness is a keynote in arithmetic (p. 4), the scope of the former syllabus was reduced by: (1) some processes being stepped forward one class, i.e. grade; (2) the complexity of some areas, such as fractions, being simplified; (3) certain processes not in common use, such as square root, being excluded. The Syllabus has been expanded in include "spatial knowledge" beginning in Standard I (Grade 3, Alberta). The New Zealand Secondary schools do not appear to be unduly concerned if their entrants have not covered a wide range in arithmetic, but they do ask that what has been covered shall have been done thoroughly (p. 9). Particularly, they press for accuracy in the fundamental processes.

More social arithmetic, that is, application of arithmetic to domestic, economic, and civic conditions of life, is prescribed at all levels. Commercial arithmetic in its more technical aspects is postponed to the post-primary or secondary school but civic arithmetic which deals with the day-to-day concerns of the ordinary person is brought within the scope of the primary school (p. 7). In this regard, the New Zealand Yearbook is cited as a source of tables, graphs, and data for discussion and interpretation in the classroom.

It is emphatically stated in the Introduction by way of cautioning New Zealand teachers that the prescription within the syllabus represents what should normally be mastered by children of ordinary ability during each of the six years of the course. Proper adjustment should be made for those with greater or lesser ability (p. 3).

2. *Methods*

(a) Uniformity of Method in Mechanical Operations

Although the scope of arithmetic for the various classes has not been designed for strict adherence, uniformity of method in mechanical operations in New Zealand is thought advisable, and indeed is strongly encouraged because of the high ratio of pupil transfer from school to school. The Syllabus suggests that a variety of methods often leads to confusion and waste of time and effort (p. 7). This would also seem crucial because of the large class sizes common in New Zealand schools. The uniform methods proposed in the Syllabus are: (i) Subtraction by complementary addition with adjustment by the method of equal additions; (ii) Multiplication from right to left (the method at present generally used in primary schools); (iii) Division: quotient to be placed on top in all types of division, except in certain operations in conversion (p. 7).

A distinction is made here between the definite prescription of methods and that which normally would be achieved incidentally through the use of a common text. Even here, the New Zealand government prescribes the text to be used, and it is written specifically to coincide with the course of studies.

In Alberta, the Department of Education traditionally has prescribed a favoured text but also lists yearly alternate texts which may be chosen by the local educational authorities. All these are available from the larger commercial publishing houses. However, these texts may or may not follow specifically the Alberta course of studies. In no instance, however, is the specific method of computational procedure indicated in Alberta.

In New Zealand, some 'project' arithmetic work is recommended for topics which lend themselves to such treatment. However, it is recognized that conditions within the schools make it impossible to go as far in the project method of teaching as some would consider theoretically desirable (p. 8).

The articulation of arithmetic courses in primary and post-primary (elementary and secondary) schools is similarly viewed as a matter of major concern in both Alberta and New Zealand. The New Zealand syllabus is designed in detail so that it is possible for the primary school, without undue pressure, to guarantee a minimum standard of achievement in arithmetic for the average pupil leaving Form II (Alberta Grade 8), the end of the primary school. In Alberta, the Grade IX Departmental examinations, in effect, achieve this same end.

Comparison of New Zealand's Arithmetic Syllabus (1954) From Standard I to Form I With That of Alberta From Grades Three to Seven (1949)

The principles in arithmetic which are basic to the New Zealand Syllabus and the Alberta Department of Education, Elementary School Bulletin (1949) are primarily the same. Both emphasize that meaning must be established before memorization and that special vocabulary and reading skills must be taught in the arithmetic programme. Both emphasize that what is suggested is merely a minimum achievement in arithmetic for the average pupil and that adjustments should be made for brighter and more backward children. The New Zealand Syllabus urges that as much of the work as possible should be oral, practical, and mental. About twenty percent of the items on New Zealand arithmetic tests are assigned to questions to be solved 'mentally'.

A breakdown of the curriculum outlines of New Zealand and Alberta reveals that the materials suggested for study in each, may be classified under the same general headings. These headings could be arbitrarily stated as: numeration, notation, addition, subtraction, multiplication, division, fractions, decimals, per cent, spatial arithmetic, money, vocabulary, and social arithmetic.

There are a number of differences between the two programmes, one of the more important being the speed at which progress is made from the very simple to the more difficult material. Notation in New Zealand steps through 100; 1,000; 10,000 and 1,000,000 from Standard I to Form I (Grades 3 to 7) while in Alberta it bounds through 1,000; 100,000; 1,000,000; and billions from Grade 3 to Grade 6. Although fractions are introduced at comparable times in both countries, a quicker progress towards the more difficult operations is required by the Alberta Course of Studies than by that of the New Zealand Syllabus.

A second difference between the two programs is the grade at which various number facts are introduced for study. Many number functions are introduced to the New Zealand pupil one grade or class later than they are in Alberta. Zero is recommended for introduction in subtraction, multiplication, and division in Grade 3 in the Alberta Course of Studies but is reserved for Standard II (Grade 4) in New Zealand. Other such items are: carrying in multiplication, borrowing in subtraction, multiplication and division of money, increasing exactness in the telling of time.

It may be noted that other topics such as: approximations, percent, decimals, square measure, geometric figures, graphs, and business arithmetic are introduced in comparable grades. However, in

many cases, the complexity of their use progresses more quickly in Alberta than in New Zealand. Direct proportion in simple problems is suggested for Form I (Grade 7). The Alberta syllabus does not mention this topic. The use of methods of approximation by inspection and for checking for accuracy, especially in exercises involving relatively complex mechanical operations, is mentioned in the syllabus of New Zealand but not in that of Alberta. In Alberta, the Roman numerals from one to twelve are taught in Grade 2. This knowledge is gradually expanded throughout the grades until Grade 7 where the ability to write numbers in the thousands is expected. The New Zealand Syllabus only requires that Roman numerals one to twelve be taught in Standard II (Grade 4) for clock reading. The Alberta Syllabus calls for multiplication with four-digit multipliers in Grade 5 and three-digit divisors in Grade 6. These requirements continue into Grade 7. The outline for Form I (Grade 7) in New Zealand requires multipliers and divisors limited to two figures except for purposes of conversion from one unit of measure to another when more cumbersome computations are required.

A crucial diference in the two syllabi is the timing of the introduction of various number facts in relation to that of others. The New Zealand syllabus definitely states that division is taught in association with multiplication: e.g. $3 \times 5 = 15$, $15 \div 3 = 5$. The Alberta syllabus does not make this stipulation (at the time of this study.) The order in which multiplication and division are taught is specified in the New Zealand course of studies as 2's, 3's, 5's, 4's, 10's, 6's, 12's, 11's, 8's linked with 4's, 9's with 3's, 10's with 1's, and finally 7's. In Alberta, they are mentioned in numerical order.

The test used to compare arithmetic performance in this study was the California Achievement Test: Arithmetic, Junior High Level, Form W, 1957 Edition (CAT Arithmetic). The use of the higher level of test than the elementary was deemed necessary when preliminary administrations of the Elementary level revealed that the test lacked sufficient "ceiling" for Alberta Grade 6 students. A comparison of test items of the syllabi of the Christchurch and Edmonton samples revealed that each group could have trouble with the following CAT Arithmetic items:

Item Type by Arithmetic Skill	Christchurch Stand IV	Christchurch Form I	Edmonton Grade 6
a. Numbers written in millions	X		
b. Per cent	X		
c. Roman numerals	X	X	X*
d. Square root	X	X	X
e. Simple Algebraic problems	X	X	
f. Directed numbers	X	X	X
g. More complicated problems in $'s and c's	X	X	
h. Cubic measures	X	X	X
i. Approximations	X		
j. Problems in Business Arithmetic	X		

*Roman numerals in the thousands.

Hypotheses

With the above similarities and differences in mind the following hypotheses were established for this study.

1. The question of maturity is more important in achievement than years of schooling. Therefore, there will be no difference in performance between Edmonton and Christchurch pupils of the same age, that is, between Edmonton Grade 6's and Christchurch Form I's, but both the above groups will perform better than Christchurch Standard IV's. Moreover, the hypothesis will prove valid by sex.

2. Sex differences will be found between like groups, i.e. Edmonton Grade 6 girls and Edmonton Grade 6 boys, favoring the girls on the Language section of the California Test of Mental Maturity (CTMM), and favoring the boys on the Non-Language section of the CTMM and on the sub scores and Total scores on the C.A.T. Arithmetic test. No differences will be found in the Total score on the CTMM.

These hypotheses were tested by comparing the means of the various groups with the conventional t-test for the significance of difference between means and using one-tailed and two-tailed tests to establish confidence limits as dictated by the statement of the hypothesis.

The Study Sample

The Alberta sample consisted of 316 Grade 6 students in ten classes. The ten classes were selected at random from homogeneously grouped classes participating in the Edmonton Grade 6 Study (AACER Grant #19, Macdonald unpublished). This study in educational growth tested Edmonton Grade 6 students in May 1959 with the California Short Form Test of Mental Maturity, Ele-

mentary, 1957, Form S (CTMM) and the California Achievement Tests, Complete Battery, Junior High Level, Form W, 1957 Edition. The arithmetic test used in this study was one of the achievement tests.

The New Zealand sample consisted of 252 Standard IV's and 289 Form I students in ten classes in five schools selected by Christchurch school officials as being typical of that city's schools. It is noted here that the class size in the two systems vary markedly. In Christchurch, the average class size is in the fifties, while in Edmonton, it is in the low thirties. The New Zealand students were tested in October and November 1959. Because of the nature of the New Zealand school year, October and November is equivalent to April-May in the Edmonton school year. The sample, noted above, in each instance was reduced slightly from the total school population tested to include only those students who had written both the CTMM and the CAT Arithmetic Tests.

The means and standard deviations on each sub and total score on both tests for each group were determined and are reported in Table I. All data are reported in raw scores.

Findings and Discussion

The summary of the testing of the various hypotheses indicated above is reported in Table II. The findings may be summarized as follows:

1. There are no statistically significant differences in test score performance between sexes within each of the three groups.
2. Edmonton Grade 6's of each sex perform significantly better on the tests than do either of the two Christchurch groups with the following exceptions: no significant differences were found on the Non-Language part of the CTMM between Edmonton Grade 6 male and female students and the equivalent Christchurch sex groups in Form I.
3. Christchurch Form I students performed significantly better on both tests than the Christchurch Standard IV's with one exception: no significant difference was found between the two male Christchurch groups on the Language part of the CTMM.

The problems of comparing educational achievements are only too readily apparent in this study. It could be reasoned that the differences found could be readily attributed to any one or all of the following factors:

a. *Cultural Factors*

It is true that cultural differences have entered into the present study. The choice of an American test is on the surface bound to

TABLE I

SUMMARY OF MEANS AND STANDARD DEVIATIONS FOR EDMONTON AND CHRISTCHURCH STUDENTS BY SEX AND LEVEL IN YEARS OF SCHOOLING

Group	Years of Schooling	Sex	N		C.T.M.M.			C.A.T. Arithmetic		
					Language	Non-Language	Total	Reasoning	Fundamentals	Total
Christchurch Standard Four	6	F	118	X	43.04	40.42	83.40	17.33	29.87	46.89
				S.D.	8.6	10.5	15.9	4.8	8.3	11.5
	6	M	134	X	43.68	39.98	83.68	17.96	28.61	46.64
				S.D.	8.9	10.9	17.0	7.7	10.0	15.1
Christchurch Form One	7	F	135	X	47.19	47.33	94.37	22.87	42.16	65.03
				S.D.	7.0	9.8	14.8	6.9	12.2	17.8
	7	M	154	X	45.75	46.66	92.58	24.38	41.17	65.49
				S.D.	9.1	11.1	16.2	8.9	13.5	20.5
Edmonton Grade Six	6	F	155	X	50.41	48.09	98.57	27.36	51.61	78.97
				S.D.	10.6	6.3	13.8	5.9	10.7	15.5
	6	M	161	X	49.82	48.62	98.44	28.36	50.59	78.95
				S.D.	7.6	6.2	14.3	5.7	11.3	22.5

TABLE II: Summary of Testing a Variety of Hypotheses Relating to the Test Performance of the Edmonton and Christchurch Samples

Hypothesis Tested	Acceptance of Hypothesis					
	C.T.M.M.			C.A.T. ARITHMETIC		
	Lang.	Non-Lang.	Total	Reason	Fundam.	Total
Edmonton Grade 6, Female > Christchurch Standard 4, Female	1%*	1%	1%	1%	1%	1%
= Christchurch Form 1, Female	Rej. 1%E**	Accept	Rej. 5%E	Rej. 1%E	Rej. 1%E	Rej. 1%E
Christchurch Form 1, Female > Christchurch Standard 4, Female	1%	1%	1%	1%	1%	1%
Edmonton Grade 6, Males > Christchurch Standard 4, Male	1%	1%	1%	1%	1%	1%
= Christchurch Form 1, Male	Rej. 1%E	Accept	Rej. 1% E	1%	1%	1%
Christchurch Form 1, Male > Christchurch Standard 4, Male	Rej. (NSD)	1%	1%	1%	1%	1%
Edmonton Grade 6, Female > Edmonton Grade 6, Male	Rej. (NSD)					
= Edmonton Grade 6, Male			Accept			
< Edmonton Grade 6, Male		Rej. (NSD)		Rej. (NSD)	Rej. (NSD)	Rej. (NSD)
Christchurch Standard 4, Female > Christchurch Standard 4, Male	Rej. (NSD)					
= Christchurch Standard 4, Male			Accept			
< Christchurch Standard 4, Male		Rej. (NSD)		Rej. (NSD)	Rej. (NSD)	Rej. (NSD)
Christchurch Form 1, Female > Christchurch Form 1, Male	Rej. (NSD)					
= Christchurch Form 1, Male			Accept			
< Christchurch Form 1, Male		Rej. (NSD)		Rej. (NSD)	Rej. (NSD)	Rej. (NSD)

* Hypothesis accepted at 1% level of confidence.

** Hypothesis rejected. The data showed Edmonton Grade 6 females to be superior to Christchurch, Form I, females at 1% level of confidence.

favour Canadian students. Yet the New Zealand syllabus like our own reflects the influences of Amercan education so that claims of difference attributed directly to the test are not as valid as they might well be for other members of the Commonwealth. On the other hand, very real cultural differences do exist. For example, the monetary system of New Zealand based on the pound-sterling is vastly different from the dollar-decimal system used in Canada. In New Zealand, the money system must be taught as a distinct unit with little opportunity for transfer to and from other parts of the curriculum, such as decimals and the dollar system. Another less apparent example would be the New Zealand system of weights and measures. Vocabulary differences, particularly of the language part of the CTMM, should favor Edmonton students, yet in several instances it did not. Such vocabulary differences should not directly affect the language of arithmetic needed for the test although it might be more valid for those items in which the problem is defined verbally as opposed to those expressed in mathematical symbols. However, an examination of the tests concerned would suggest that while this could be a factor, it was not likely to have exerted a major

influence in the completion of the test nor was it likely to have been a determiner of whether a New Zealand student would have been able to attempt the test item or not with equal likelihood of success.

b. *Teaching Factors*

It would appear that the most significant influence on the study results was the syllabus and the approach to it. It has already been noted that the Edmonton students attacked mathematical concepts of a more complex nature at a more quickened pace than did the Christchurch students. The latter students were taught a programme which emphasized thoroughness and unlike Edmonton students, with a greater emphasis on oral problem solving. It would appear on the evidence of this study that on written tests, at least, and conceding an extra year of schooling, this emphasis on thoroughness has not realized comparable performance gains when compared with Edmonton students. However, other areas of study might reveal such differences.

Far more critical may be the size of the classes. It has been noted that the typical Christchurch class size is in the fifties whereas in Edmonton, this was in the low thirties. It could well be, and undoubtedly is a contributing factor that given teachers of equivalent experience and training, as was the case for this study, the time for individual attention in Christchurch classes compared with Edmonton classes may, in fact, have necessitated the slower pace. Conversely, the smaller Edmonton classes with more time for individual attention has meant that the pace of instruction could be quickened with little detrimental efect on thoroughness and accuracy as measured by test performance on the instruments used.

c. *Testing Factors*

It could be reasoned that Edmonton pupils would have a distinct advantage over the Christchurch students in the degree to which they have been exposed to multiple choice tests. Such was not known to be the case. Both had had about equal amounts of such testing. However, the use of an American test was not without its disadvantages. It might well have been ideal to have tested Edmonton pupils with a test designed specifically for New Zealand students.

In summary, to the extent that the tests used fairly measure arithmetic achievement, and notwithstanding differences in class size and curriculum pacing, it is evident that as a group, Edmonton students perform better than their New Zealand counterparts who have had either an equal numbers of years of schooling or were of the same age level.

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BOOK REVIEWS

Lambert, Richard S. *School Broadcasting in Canada.* University of Toronto Press, 1963. 209 pp. — $5.00

This is a factual, timely and very readable account of the origins and development of school broadcasting in Canada during the two decades, 1940-1960, that may well prove to have been its Golden Age.

After an introductory summary of the present status and organization of school broadcasting in Canada, there follow sections devoted respectively to the origins of school broadcasts in each of the provinces, and to the establishment of national school broadcasts under the guidance of the National Advisory Council on School Broadcasting. The final section, entitled, "Further Developments", describes, among other things, efforts at international co-operation in school broadcasts, particularly between Canada, Great Britain, Australia, and the United States, and concludes with a chapter devoted to first experiments in educational television during the years 1954-1962.

Quite apart from the great contributions which school broadcasting has made to the enrichment of classroom activities, the enterprise itself stands as a striking example of federal-provincial co-operation in education at an operational level—curriculum and instruction—where provincial autonomy is most jealously guarded. How great an achievement this has been, how much effort and diplomacy have been required to develop and maintain this co-operation, and how fragile a thing it is can be inferred from the following excerpts from the concluding paragraphs of the chapter in which the author discusses the National Advisory Council on School Broadcasting.

> . . . the attitude of reserve which originally characterized the relations of educators towards the CBC has lasted a surprisingly long time . . .
> The personnel and funds available for school broadcasting in the provinces have been sadly limited . . . The personnel has felt that their jobs depended more on the success of their own local broadcasts than upon he success of the national series.
>
> It has often come as an unpleasant surprise to both CBC and other school broadcasters to find what little awareness of the nature and accomplishments of school broadcasting has penetrated to the upper echelon of the Canadian community as a whole, the political leaders, senior civil servants, university presidents, professors of education, and even senior provincial officials. The lack of information has been reflected unfavorably in the budgets made available at various levels, and school broadcasting has not been enabled to progress and take its full place in the educational system.

The author, who was Supervisor of School Broadcasts for the CBC from 1943-60, probably knows more about the history of school

broadcasting in Canada than any other person in the country. In fact, the unique charm of his book is the unmistakable impression it gives of having been written by one who actually "was there" and personally witnessed and was deeply involved in most of the developments that are being chronicled.

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Human Development From Birth Through Adolescence
I. J. Gordon
Harper & Bros., New York

A review of Gordon's *Human Development* in this Journal is inevitably prejudiced. It is, in the reviewer's experience, the first book in its field to make extensive use of articles in the Alberta Journal of Educational Research. This does not indicate however, any prejudice on the part of the author in favour of Alberta nor Canadian research, it is instead, an indication of the breadth of the sources on which this book has been based.

There are extensive references to the usual sources for a book of this kind, the American Journals with relatively large circulations, and also to less commonly used sources, Canadian, European and Asian Journals and privately circulated manuscripts. This is not merely a matter of biliographical reference but the integration in the text of findings not easily available elsewhere.

The bulk of material in this book is familiar to specialists in this field. Ausubel and Bailey, Havighurst and Jersild, Milner and Sears have the most frequent references. However, use is made not only of British authors like Morris and Himmelweit, and Canadian authors like Monro and Brown, but also much unfamiliar American material published in either sociological or anthropological journals or in specialized and not easily available educational and psychological journals. The author then has searched widely for material relevant to his thesis and has carefully integrated it into the text. Inevitably he has been selective and we may question why he chose to include this particular article rather than that, but in all cases, the material is assimiliated into the purposes of the text. Theory and research data is not presented raw, but is always well-illustrated, and the practical implications are pointed out: This makes it an ideal text for beginning students from this point of view.

The strength of the book, its unified theme, gives rise to its fundamental weakness. The author is concerned primarily with the de-

velopment of the human person, the human personality. For children of course, development inevitably involes school, education, but the author is not primarily interested in factors influencing educational development. Consequently, matters of some dispute in educational circles are passed over lightly with a simple assertion like "research indicates that a mental age of 6½ is required to read" (page 185). This assertion can no longer be accepted without question. Because it is an area in which the author is not primarily interested, no adequate reference is made to the experimental evidence and there is an implied assumption that the barrier to earlier is psychological. There are a number of assertions of this kind, in particular in educational matters, which weaken the book from the educational point of view.

While this book cannot therefore be given unqualified recommendation as a basic text in a course in the Faculty of Education, it has an important place as supplementary reading presenting the research material from a coordinated theoretical position.

W. B. DOCKRELL